THE ECONOMICS OF AIR MAIL TRANSPORTATION

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THE ECONOMICS OF AIR MAIL TRANSPORTATION

BY

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PREFACE

In this volume the author presents a compact history and an economic appraisal of the air mail service in the United States, and concludes with a series of recommendations with reference to public policy for the immediate future. During the period from 1918 to 1926 the principal transport service to carry air mail was operated by the Post Office Department. In the latter year the so-called contract system was established, under which mail was carried by privately owned companies operating on contracts from the federal government. These contracts involved large hidden subsidies to passenger air transport.

It may sharpen the reader's interest to know that the net deficit on air mail service has aggregated approximately 75 million dollars. During the period of federal operation the net cost to the Post Office Department was approximately 12 million dollars; from 1926 to 1933 government payments to private companies exceeded estimated air mail postage revenue by more than 53 million; and the cost of handling air mail on the ground has aggregated at least 10 million. The balance of the cost of air mail service has been met by postal revenues from air mail, which to July 1, 1933 had amounted to approximately 38 million dollars.

The author began this study while a student at Brown University, and continued it on a research fellowship at The Brookings Institution. The committee of The Brookings Institution which has co-operated with Dr. David has consisted, in addition to the writer, of Charles O. Hardy, Fred W. Powell, and Laurence F. Schmeckebier.

The book was in galley proof at the time the air mail contracts were cancelled. It has been revised to take account of recent developments.

HAROLD G. MOULTON
President

The Brookings Institution
April 1934

AUTHOR'S ACKNOWLEDGMENTS

The author is indebted, for the materials and information on which this study is based, to numerous officials and other individuals who have been associated at one time or another with the government air service. They include the Honorable James M. Mead, chairman of the House Committee on the Post Office and Post Roads; the Honorable Clyde Kelly, author of the Air Mail Act of 1925 and its earlier amendments; Mr. James C. Edgerton, a former official of the Air Mail Service; Colonel Paul Henderson, a former second assistant postmaster general, now a vice-president of United Aircraft and Transport Corporation; Mr. William F. MacCracken, Jr., formerly assistant secretary of commerce for aeronautics; Mr. John F. Victory, secretary of the National Advisory Committee for Aeronautics; Mr. Frank E. Ormsbee, formerly a representative of the Air Line Pilots Association; Mr. E. B. Wadsworth, formerly superintendent of Air Mail Service; and Mr. A. H. Gilbert, chief accountant of the Division of Air Mail Service.

Special mention should be made of the helpful assistance received from the Honorable Harllee Branch, second assistant postmaster general; the Honorable Karl A. Crowley, solicitor of the Post Office Department; and Mr. S. A. Cisler, superintendent of Air Mail Service, in connection with the last revision of the manuscript following cancellation of the air mail contracts. The book has also benefited greatly from the knowledge gained by the writer while employed by the National Transportation Committee.

Permission for the publication of the book was given by the Chairman of the Tennessee Valley Authority, in view of the fact that it represented the conclusion of an activity almost completed by the writer before his present connection with the authority began.

These acknowledgments do not imply approval of any part of the work by officials of the Post Office Department, or the Tennessee Valley Authority. The entire responsibility for the conclusions stated is accepted by the writer.

The undertaking of the study was made possible by a research fellowship granted by The Brookings Institution for the year 1931-32. For helpful guidance throughout the progress of the study, the writer is indebted not only to a committee of The Brookings Institution but to Professors James P. Adams and Chelcie S. Bosland of Brown University, and to Dr. Walter M. W. Splawn, now of the Interstate Commerce Commission.

PAUL T. DAVID

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CHAPTER I

BEGINNINGS, 1911-21

Three years before Orville Wright's historic flight of December 17, 1903, the prospects of the airplane were summed up as follows by Octave Chanute: "Flying machines promise better results as to speed [than balloons], but yet will be of limited commercial application. They may carry mails and reach otherwise inaccessible places, but they cannot compete with railroads as carriers of passengers or freight. They will not fill the heavens with commerce, abolish custom houses, or revolutionize the world, for they will be expensive for the loads which they can carry, and subject to too many weather contingencies. Success is, however, probable."[1]

Some twelve years after this prophecy an airplane carried mail with official approval for the first time in the United States. On that occasion the transportation of mail was only one incident of an aviation meet; but from this meager beginning we may trace the evolution of an air mail service which has attained first rank in the world. In this chapter the difficulties attending the first three years of operation, the sharp break in management and policies then made, and the achievements of the Post Office Department from 1918 to 1921 are set forth.

I. THE ORIGIN OF THE SERVICE

Just ten years after Octave Chanute had summarized the prospects of the airplane, Congressman (now Senator) Morris Sheppard of Texas introduced a bill provid-

[1] "Aerial Navigation," *Independent*, Apr. 26 and May 3, 1900, Vol. 52, pp. 1006-07, 1058-60.

ing for an investigation of the cost of an air mail service. This was probably the first Congressional bill on the subject of air mails.[2]

The matter reached the stage of serious discussion in England during the following year. In September 1911 Mr. R. C. Tombs, previously of the London Postal Service, wrote an eminently sane essay on the subject. After commenting on the fact that the daring aeronauts of the period could not fly safely in winds of more than 30 miles an hour and pointing out that they required flat fields 200 yards square to land on, he gave an excellent summary of the qualities desirable in a postal airplane:

> When scientific man has produced a flying machine which can be used by night as well as by day, and in all conditions of wind and weather, with power to descend in and ascend from spaces of small area at all necessary controls *en route*, to carry loads, say, of half a ton with corresponding cubical capacity for packing, to work to a time table with precision and regularity and in accordance with specially arranged landmarks, to maintain a speed of 40 to 50 miles an hour, and to do all this at a cost of about one shilling a mile on the carriage, then, and not till then (and the writer sincerely hopes that it may be sooner rather than later), apparently can an aerial mail service be set up to be of daily and hourly use to the Post Office for light weights at special rates.[3]

Not deterred by these remarks, in September 1911 the British Post Office carried on an experimental air mail service between Hendon and Windsor for a few days which amply demonstrated the need for further advance in airplane design.[4]

[2] *Cong. Record*, June 14, 1910, Vol. 45, p. 8144; 61 Cong. H.R. 26833.

[3] "An Aerial Letter Post," *Aero* (London), September 1911, Vol. 5, pp. 156-58.

[4] R. C. Tombs, "The Aerial Post Trial and Its Lesson," the same, October 1911, Vol. 5, p. 194.

Mail was carried by airplane with official approval for the first time in the United States during the same month. On September 24, 1911 Earle L. Ovington took several sacks of mail from the aviation meet at Nassau Boulevard, Long Island, to Mineola, Long Island, where the pouches were dropped from the airplane and picked up by the Mineola postmaster.[5]

Apparently the practice of establishing small air mail routes at aviation meets soon became general. The Second Assistant Postmaster General reported in 1912 that 31 orders were issued during the period from July 1, 1911 to June 30, 1912, permitting air mail service in 16 states. He stated that in all cases the service was temporary and not intended to be permanent, and was performed by a sworn carrier without cost to the department. He added that "in many instances service was performed in a reasonably satisfactory manner."[6] The practice died out rapidly in the following years, possibly indicating a saturated market for air mail covers among stamp collectors.

The pre-war flights with air mail are of other than antiquarian or philatelic interest only because they led to proposals for regular air mail service. Shortly after the first air mail flight, an editorial appeared in *Aero* favoring the establishment of an experimental air mail service.[7] The editor expressed the belief that a small experimental service could be self-supporting in the beginning from the special postage charged. This prediction was doubtless over-optimistic, but when the market among stamp collectors is taken into consideration it appears less so.

[5] Post Office Department, *Air Mail*, p. 1.
[6] *Report of the Postmaster General*, 1912, pp. 141-42.
[7] "Aero Mail Service," *Aero* (St. Louis), Oct. 14, 1911, Vol. 3, p. 40.

The proposal that air mail service be established met with more favor in official quarters than might have been expected. The Second Assistant Postmaster General in his first report on the subject (1911) expressed a desire to test the airplane under practical conditions where other methods of transportation experienced difficulty, and recommended an appropriation of $50,000.[8] The recommendation went unheeded until the next regular Post Office Department appropriation bill reached debate on the floor of the House of Representatives. At that time Congressman Sharp of Ohio offered an amendment which would have provided $50,000 for an experimental air mail service, but the amendment was defeated.[9]

A year later a second attempt to obtain air mail service was made. The occasion was again the debate on the regular Post Office Department appropriation bill. This time Congressman Sharp asked for no special appropriation, but merely an authorization for "transportation of mail by aeroplane or other air craft" under the appropriation for difficult or emergency mail service in Alaska. The amendment was ruled out on a point of order,[10] because it would have appropriated funds for a purpose with no previous legislative authorization.

Early in the Wilson administration Congressman Sharp introduced a bill which authorized contracts for the transportation of mail by airplane;[11] and Postmaster General Burleson in his first annual report (1913) recommended an appropriation for the development of air mail transport.[12]

[8] *Report of the Postmaster General*, 1911, p. 145.
[9] *Cong. Record*, Apr. 20, 1912, Vol. 48, pp. 5063-66.
[10] The same, Jan. 13, 1913, Vol. 49, pp. 1448-50.
[11] 63 Cong. H.R. 3393, Apr. 21, 1913.
[12] P. 50.

The Sharp bill received the favorable consideration of the Committee on the Post Office and Post Roads of the House of Representatives. The committee reported that the French government was then carrying mail regularly by airplane in France and across the Sahara, and quoted a letter of the Second Assistant Postmaster General stating that the department wished to keep abreast of other progressive postal administrations. As proof of the existing perfection of flying, certain record-breaking flights were mentioned, particularly one across the widest part of the Mediterranean, from France to Africa. The aviator who made the flight, Roland Garros, was quoted as follows:

> The aeronautical motors are on the threshold of perfection; their reliability is increasing daily; they can be relied upon to fly for hours without trouble, and to give their rated horsepower continually; this state of perfection makes possible almost anything.[18]

The most illuminating part of the report on the bill was that devoted to a discussion of the circumstances under which it was believed the airplane would prove useful. It was to be used only where existing transportation was not good. Long circuitous routes to avoid canyons and gulches in the arid parts of the West were cited, and little desert towns which could be reached by a hundred miles of travel as the crow flies were described as served by mail routes several hundred miles in length.

A similar situation in Alaska, where mail was carried to outlying districts by pack train and dog sled, was set forth. In some instances it was believed that the airplane could replace the existing means of transportation at an actual saving of expense.

[18] *63 Cong. H. rep. 126.*

The proposal that the most modern transport device be used under the most primitive conditions undoubtedly presented some elements of the bizarre. It pointed to one very important function of the airplane, however.

The fact that the possible transport uses of the airplane fall into two groups has frequently led to confusion and to argument at cross purposes. One group of uses is founded upon the airplane's advantage in speed; the other upon its ability to fly over obstacles which hamper surface transportation. Because of its speed it may succeed along routes of the greatest traffic density, where other transportation has reached a high level of excellence; and because of its ability to avoid surface obstacles it may have a real cost advantage and do a small but profitable business on routes where traffic is exceedingly thin and other transportation rudimentary. But it is at a disadvantage in the middle ground.

Considerations of speed, and of possible competition to the railroads, apparently did not even occur to the committee considering Congressman Sharp's proposal. The bill was discussed late in 1913, when speed was not the outstanding characteristic of the airplane. The record that year was 126.7 miles per hour; but the long flight by Garros cited in the committee report averaged less than 70 miles an hour,[14] and probably most of the airplanes then in the United States could not have done as well.

Unfortunately, the airplane of the time was equally ill adapted to the uses which the committee did envisage. It was typically a frail, fair-weather craft, with insufficient strength and endurance to stand commercial usage. However that may be, Congressman Sharp's bill was

[14] F. A. Magoun and Eric Hodgins, *History of Aircraft*, pp. 378, 435.

defeated after a period of unsympathetic debate on the floor of the House.[15]

Postmaster General Burleson did not, however, lose hope. He repeated his recommendation for $50,000 in his next annual report,[16] and at the House appropriation hearings it received the support of Mr. Joseph Stewart, the second assistant postmaster general. Mr. Stewart admitted that there was no popular demand for the service, and that he was not clear as to its practicability, but expressed the hope that it might contribute to the development of aerial navigation.[17]

By this time the World War was in progress, and attitudes towards aviation changed perceptibly. In February 1915, in a speech before the Aero Club of America, Mr. Stewart emphasized the military significance of the airplane as well as its postal utility: "When we shall have built up a great service in the postal establishment, . . . we shall have 1,500 or 2,000 or more skilled aviators carrying the mails, who can be drafted into the service of the country for defense or offense."[18]

The increased regard for aviation bore fruit in the next regular Post Office Department appropriation bill. An estimate of $50,000 for air mail service was again submitted by the department, and received a favorable hearing by the Senate Committee on Post Offices and Post Roads.[19] The committee amended the appropriation bill to include transportation of mail by airplane, and

[15] *Cong. Record*, Dec. 15, 1913, Vol. 51, pp. 929-36.

[16] For the year 1914, p. 25.

[17] *Post Office Appropriation Bill*, 1916, Hearings, House Committee on the Post Office and Post Roads, Dec. 9, 1914, pp. 127-29.

[18] "The Post Office and the Aeroplane," *Flying*, February 1915, Vol. 4, pp. 404-05.

[19] *Post Office Appropriation Bill*, 1917, Hearings, Senate Committee on Post Offices and Post Roads, Apr. 11, 1916, pp. 47-51.

the amendment was agreed to by the Senate and House without debate.[20] The result was the first appropriation for mail service by airplane.

This appropriation was made without any previous legislative authorization for such a service, a situation which continued to prevail until the termination of government operation of air mail service in 1927. In most cases throughout this period the air mail appropriation was put through Congress in the same manner as in the first instance. That is, the appropriation bill as passed by the House carried no appropriation for air mail, either because it was not recommended by the House Committee, or because it was eliminated on the floor of the House on a point of order. The appropriation was then put in by the Senate Committee, and stayed in because it was not possible to make a point of order against it under the Senate rules, and because a majority of the Senators were from the beginning friendly to the service. The appropriation was then agreed to by the House after conference, although on several occasions rather unwillingly.

This first appropriation for air mail service was not made until after the first steps toward establishing the service had been taken. On February 12, 1916 the Post Office Department issued an advertisement asking for bids on eight proposed routes.[21] Seven of these routes were in Alaska, while the other was from New Bedford to Nantucket, Massachusetts. This advertisement attracted favorable comment, but the prospects for receiving bids were not generally considered good, since manufacturers were busy on war orders and aviators were

[20] *Cong. Record*, June 20, 1916, Vol. 53, p. 9624; July 18, 1916, Vol. 53, pp. 11239, 11243, 11253.

[21] *New York Times*, Feb. 13, 1916, Part I, p. 16; *Aerial Age*, Feb. 21, 1916, Vol. 2, p. 543.

scarce.[22] On May 12, 1916, the date for opening bids, only one offer was found. A service between Seward and Iditarod, Alaska, to cost $49,500 per year, was proposed. This was $34,558 less than the cost of the existing service; but since the bid was not accompanied by the required bond, it could not be accepted.[23]

Public attention was next drawn to efforts on behalf of an air mail service by a proposed non-stop flight from Chicago to New York. The flight finally took place on November 2 and 3, 1916, but not as a non-stop flight. One sack of mail was carried, and apparently the occasion was capitalized by a group in Chicago in order to obtain publicity for an air transport company which they were promoting. They proposed to establish an overnight service between Chicago and New York, and sought an air mail contract from the Post Office Department in support of the venture. The project is worthy of note because it was probably the first serious proposal for air mail service of the pattern finally adopted. It involved service on a heavy traffic route over which there was excellent railroad transportation, and utilized night flying to enhance the speed advantage of the airplane. The proposal was novel at the time, and so obviously premature that nothing came of it.[24]

The attempts to establish air mail service had meanwhile attracted the attention of the National Advisory Committee for Aeronautics, whose good offices were to be of some importance during the following two years.[25]

[22] Henry Woodhouse, "Post Office Department Invites Proposals for Carrying Mails by Aeroplane," *Flying*, March 1916, Vol. 15, pp. 53-63.

[23] *Cong. Record*, Sept. 2, 1916, Vol. 53, Appendix, p. 2035.

[24] *New York Times*, Oct. 27, 1916, p. 2; Nov. 4, p. 1; Nov. 14, p. 6; Dec. 15, p. 8; Dec. 18, p. 18.

[25] An independent establishment of the United States government authorized in 1915. The committee consists of representatives of the War Department, the Navy Department, the Smithsonian Institution, the

After its first consideration of the subject, the committee recorded its opinion that the routes proposed in Alaska and the one to Nantucket were too difficult to attract responsible bidders, and recommended instead that Congress authorize the Post Office Department to establish an experimental route on which some actual operating experience might be obtained under favorable conditions.[26] This recommendation was accepted, and $100,000 was provided for the purpose in the Post Office Department Appropriation Act for the fiscal year 1918, approved March 3, 1917.[27]

Though the participation of the United States in the War eventually facilitated the establishment of air mail service, for a time it slowed up the movement. On October 1, 1917 the Second Assistant Postmaster General stated in a memorandum to the National Advisory Committee for Aeronautics that he had advertised for bids on service and had negotiated with a large airplane manufacturer, but that all his efforts had come to naught because the War Department was taking the entire output of the available airplane manufacturers. His difficulties aroused the interest of Major General George O. Squier, in charge of Army aviation and a member of the National Advisory Committee.

General Squier seems to have been the first to suggest that mail carrying might be combined with the practice and service test flying of Army aviators.[28] This sugges-

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Weather Bureau, and the Bureau of Standards, and additional persons acquainted with the needs of aeronautical science or skilled in aeronautical engineering or its allied sciences.

[26] *Report of the National Advisory Committee for Aeronautics*, 1916, pp. 10-11.

[27] 39 Stat. L., 1064.

[28] National Advisory Committee for Aeronautics, *Minutes of the Executive Committee*, Oct. 4, 1917.

tion was not immediately adopted, and instead an unsuccessful attempt was made to secure airplanes for the Post Office Department either from or through the Army.[29] Later, the War Department agreed to furnish motors, and on February 11, 1918 the Post Office Department advertised for bids on five airplanes without motors.[30] When the bids were opened, however, Colonel Deeds of the War Department appeared and made a definite offer of airplanes and pilots. The Secretary of War questioned the propriety of this move, however.[31] As a result some members of the National Advisory Committee intervened and recommended active co-operation to the Secretary of War. In the course of this intervention the following summary of the state of affairs was submitted to the Secretary of War:

> Under existing conditions, practically all aircraft manufacturing facilities are being utilized by the War and Navy Departments and all capable aviators are in the service of these departments. In view of the further fact that it is exceedingly desirable that army aviators be regularly and systematically trained in long-distance flying, it would appear to be to the advantage of the government and of the War Department that military airplanes and aviators be used to render practical and effective service to the nation in the manner proposed.[32]

This point of view finally prevailed, and after some further delay incident to the actual establishment of operating facilities, a group of Army pilots began to

[29] Letter from the Office of the Chief Signal Officer, dated Dec. 8, 1917, in the files of the National Advisory Committee for Aeronautics.

[30] "Aero Mail Proposal and Specifications," *Aerial Age*, Feb. 25, 1918, Vol. 6, p. 1063.

[31] National Advisory Committee for Aeronautics, *Minutes of the Executive Committee*, Feb. 23 and Mar. 15, 1918.

[32] Letter from Dr. C. D. Walcott, chairman of the Executive Committee of the National Advisory Committee, to the Secretary of War, dated Mar. 21, 1918, in the files of the committee.

furnish the transportation for the first regular air mail service in the United States.

II. WAR-TIME OPERATION AND THE EFFECTS OF THE ARMISTICE

The present air mail service was put in operation on May 15, 1918 with the official opening of the New York-Washington route. On that date air mail was carried on schedule from New York to Washington. The War Department furnished airplanes and the necessary flying and maintenance personnel, while the Post Office Department made the postal arrangements and secured the use of landing fields at New York, Philadelphia, and Washington. A bill was rushed through Congress at the last minute to authorize postage up to 24 cents an ounce.[83] Business men in New York, Philadelphia, and Washington were consulted concerning operating schedules,[84] and the service was begun.

The plans for the transport part of the service were built around two ideas having their origin in war conditions. One was to use the service to train Army aviators in cross-country flying; the other to use equipment no longer needed by the Army. As a result the service was inaugurated with pilots none too skilled and equipment consisting of light training airplanes with small capacity for both fuel and mail. Accordingly, the operating scheme involved the transference of the mail from one airplane and pilot to another at Philadelphia.

The initial operating results of the co-operative service fell short of perfection. On the first day the two pilots carrying the southbound mail made the combined trip of 218 miles in 3 hours and 20 minutes, less than

[83] Approved May 10, 1918, 40 Stat. L., 548.
[84] "Aerial Mail Plans," *Aviation*, May 1, 1918, Vol. 4, p. 465.

the time tentatively scheduled. The northbound pilot from Philadelphia also came through successfully after waiting vainly for the pilot due from Washington.[35] This latter unfortunate individual was delayed 17 minutes at Washington, in the presence of the President of the United States and various other notables, because attendants had forgotten to put gasoline in his airplane.[36] He then succeeded in flying 20 miles into Maryland, where he became confused, broke his propeller in a forced landing, and forwarded the mail by train.[37] Various other mishaps during the following two weeks lowered performance to approximately 75 per cent of the scheduled mileage, but by June the routine was established and in that month the percentage was raised to about 93.

Meanwhile, the effort to co-ordinate the activities of the War and Post Office Departments had not been without friction. The Post Office Department had accepted the original offer of co-operation on condition that service would be provided without fail at the times scheduled. Shortly thereafter a group of military aviators, including a colonel of the British air force, attempted to persuade Second Assistant Postmaster General Praeger to give up the attempt, on the ground that regular operation would be impossible in bad weather and during the winter. However, the service had been publicly announced and co-operation was insisted upon.[38] Neverthe-

[35] "New York-Philadelphia-Washington Aerial Mail Great Success," *Aerial Age*, May 27, 1918, Vol. 7, pp. 531-32, 554.

[36] "They Forgot What Was Unforgettable," *New York Times*, May 17, 1918, p. 12.

[37] Henry Woodhouse, "The Inauguration of the New York-Philadelphia-Washington Aerial Mail Line," *Flying*, June 1918, Vol. 7, pp. 413, 415, 421.

[38] See the statement by Congressman Madden, *Cong. Record*, Dec. 17,

less, the imperfect operating record of the service was a source of disappointment to the Post Office Department, and preparations to end co-operation were begun.

Six airplanes were purchased early in August, and several civilian aviators were employed. These pilots were men who had learned flying before the War, and who had been released by the Army from employment as civilian instructors.[39]

The actual operation of the transport service was taken over by the Post Office Department on August 12, 1918. The change was made without any impairment of service, and probably with some improvement. In defense of the Army record during the initial period of operation, several factors which gave an advantage to the new service may be cited. Cadets were replaced by experienced aviators, weather conditions were probably better in August and September than they had been in May and June, and the airway was being improved by the marking of emergency landing fields.[40]

The transfer of the service brought into question the propriety of air mail experimentation in a time of national crisis. The service no longer possessed training value for Army aviators; it had only dubious postal value since air mail was seldom transmitted between post offices much more quickly than mail sent by train; and it was a drain upon the aircraft manufacturing facilities and civil aviation personnel of the country, if only to a

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1918, Vol. 57, pp. 586-87; Otto Praeger, "What the United States Air Mail is Accomplishing," *Aircraft Journal*, Aug. 23, 1919, Vol. 5, No. 8, pp. 5, 18; "Aerial Mail Service," *Aerial Age*, May 19, 1919, Vol. 9, p. 501; letter from the Postmaster General, *Cong. Record*, Jan. 6, 1920, Vol. 59, pp. 1084-89.

[39] *Post Office Appropriation Bill*, 1921, Hearings, Senate Committee on Post Offices and Post Roads, Jan. 29, 1920, pp. 49-50.

[40] "Plane Mail Successful," *Aerial Age*, June 3, 1918, Vol. 7, p. 578.

limited extent. An attempt was made to answer these objections by asserting that the facilities employed were not needed for military use.[41]

The declaration of the Armistice on November 11, 1918, however, ended these objections and caused proposals for the expansion of air mail service. It appeared that hundreds of Army aviators would soon be asked to return to civil life. The existence of thousands of surplus airplanes in the hands of the Army and Navy was realized somewhat more slowly, but eventually was most decisive in affecting public opinion and Congressional action.

The Post Office Department was more than willing to sponsor a program of rapid expansion of air mail service. It hoped to secure an important advance in postal service, to use facilities and personnel released from war activities, and to salvage enough of the existing aviation industry to furnish a nucleus for expansion in any future war emergency. Proposed air mail routes were outlined in the annual report of the Postmaster General for 1918 as follows:

New York to San Francisco, with feeders from
  Chicago to St. Louis and Kansas City
  Chicago to St. Paul and Minneapolis
  Cleveland to Pittsburgh
Boston to Key West, with feeders from
  Philadelphia to Pittsburgh
  Washington to Cincinnati
  Atlanta to New Orleans
Key West, via Havana, to Panama
Key West, via the West Indies, to South America

A greatly increased appropriation for air mail service

[41] Charles N. Knight, "Aerial Mail Is Using Surplus Facilities," *Aerial Age*, Oct. 21, 1918, Vol. 8, p. 234.

was necessary if expansion was to take place. For the fiscal year July 1, 1918 to June 30, 1919 the appropriation for air mail service was only $100,000.[42] The plans just cited were believed to require an appropriation of at least 3 million dollars to be obtained from a Congress marked by complete lack of unanimity on the questions of policy involved. These questions were: (1) whether to continue the service at all; (2) whether to expand the service, and if so, how much; and (3) whether to insist upon military co-operation, and if so, to what extent.

The Post Office Department commenced the fight for an increased appropriation with definite ideas on all three counts.[43] Its immediate plans provided for the inauguration of service between New York and Chicago on December 15, 1918, with extension to St. Louis in the following February and to Minneapolis in March. Handley-Page bombers capable of carrying a ton and a half were to be obtained from the Army for use between New York and Chicago. Letters posted in New York after the departure of the fast trains in the afternoon were to be taken out at 6:00 A.M. the following morning, to arrive in Chicago at 3:00 P.M. the following day, in time for delivery that day. Mail to more distant points would also be expedited. For this service a postage charge of 6 cents an ounce was to be made, and a profit was expected. Finally, said Mr. Praeger, the second assistant postmaster general:

> But here is the big thing: In the spring we are going to fly at night, leaving Chicago about 9:30 or 9:40 P.M. with the after-

[42] 40 Stat. L., 747.

[43] For the following details, see *Post Office Appropriations Bill*, 1920, Hearings, House Committee on the Post Office and Post Roads, Dec. 4, 1918, pp. 48-61, 67-68.

noon accumulation of mail, and you will get all of your transactions on the stock exchange and everything will go out that night and be in New York in the morning in time for the first or second delivery. It replaces your night letter business on the wires.[44]

The departmental appropriation bill for the fiscal year 1920 was reported to the House of Representatives with an appropriation for air mail service of $2,185,000. The liberality of the grant was more the result of the military importance attached to aviation than of the postal value of air mail service, a fact which led to an extended debate concerning the desirability of a joint service in which transport would be conducted by the Army. Notwithstanding the unfavorable results of the previous attempt at a joint service by the Post Office and War Departments, the appropriation bill was rewritten by the House of Representatives to provide for military operation, and the appropriation was cut to $300,000.[45]

The opposition of the Post Office Department led to the rejection of military operation by the Senate. A representative of the department appeared at hearings before a Senate committee and took the position that a successful postal service could not be operated with transport in the hands of the Army. It was said that the military authorities were unwilling to send out pilots in bad weather, and that "the Army does not care for schedules. Its first consideration naturally is the training of the men. It would only incidentally carry out schedules."[46] The Senate eliminated the provisions for military operation and raised the appropriation to $850,000.

[44] The same, p. 50.

[45] *Cong. Record*, Dec. 17 and 18, 1918, Vol. 57, pp. 573-78, 585-99, 623-29.

[46] *Post Office Appropriation Bill*, 1920, Hearings, Senate Committee on Post Offices and Post Roads, Jan. 9, 1919, pp. 70-111.

The changes were agreed to by the House, and the way was cleared for expansion of the air mail service under civilian direction.[47]

Regular military operation of air mail service has never since been discussed as seriously as it was then. It soon became apparent that only very exceptional pilots could survive in air mail service, and no more was heard of using it as a training school. On the other hand, during the period when unification of the Army and Navy air services was being actively advocated, it was frequently suggested that the air mail service be taken over by the proposed joint organization. It was argued that economies in operation could be effected, and that air mail pilots would thus be more readily available as a military reserve. These suggestions were not received very cordially by the Post Office Department at the time,[48] and several years later they were authoritatively answered by the President's Aircraft Board of 1925. The board raised the question, among others, of the proper relation between the military and civilian air services of the United States and replied:

> Our answer to this question is that they should remain distinctly separate.
>
> The historic tradition of the United States is to maintain military forces only for defense and to keep those forces subordinate to the civilian government. This policy has been amply justified by our experience. . . . The peace-time activities of the United States have never been governed by military considerations. To organize its peace-time activities, or what it is thought may ultimately be one large branch of them, under military control or on a military basis would be to make the same mistake which, proper-

[47] *Cong. Record*, Jan. 31, 1919, Vol. 57, p. 2435; 40 Stat. L., 1194 (approved Feb. 28, 1919).

[48] See the letter from the Postmaster General, *Cong. Record*, Jan. 6, 1920, Vol. 59, pp. 1084-89. However, the attitude of later postal administrations varied.

ly or improperly, the world believes Prussia to have made in the last generation.[49]

III. ESTABLISHMENT OF THE TRANSCONTINENTAL ROUTE

Attempts to begin service between New York and Chicago began some time before success was achieved. The first reconnaissance flights over the route took place in September 1918, but through flights were not again attempted until December. Meanwhile landing fields for regular use were secured and hangars constructed. After several delays an attempt was made to start service on December 18, 1918. This attempt failed completely, as did further efforts during the following three days.[50] The Post Office Department then announced that all of the airplane motors intended for use on the route would have to be taken down and reassembled. Assurances were given that regular service would start on January 2, 1919,[51] but at that time further postponement occurred.

The primary cause of these initial failures was the attitude of the Post Office Department. In a spirit of over-confidence, it attempted to start the New York-Chicago service before it had obtained any winter operating experience on the relatively safe New York-Washington route. It made this attempt over an inadequately explored airway which was known to offer at least 60 miles of exceptionally bad flying. The pilots were given little opportunity for practice flying over the route, and the airplanes and engines used had just been received from the War Department and had not been fully tested.

[49] *Report of the President's Aircraft Board,* Nov. 30, 1925, p. 6.

[50] "Chicago-New York Aero Mail," *Aerial Age,* Dec. 30, 1918, Vol. 8, p. 810; *New York Times,* Dec. 21, 1918, p. 20.

[51] "Chicago Air Mail Suspends Until Jan. 2," *Air Service Journal,* Dec. 28, 1918, Vol. 3, No. 26, p. 4.

Equipment difficulties were the immediate cause of failure. Motor overheating defeated the December attempts and the structural weakness of the airplane itself, the well-known DeHavilland 4 with Liberty motor, occasioned the January postponement. Shortly thereafter, the following statement was made concerning these machines:

> The Post Office Department has made a sincere effort to comply with the general and natural sentiment that the war planes left over at the conclusion of hostilities should be utilized in carrying the mails. The attempt at once developed that the DH-4s, of which more than 1,000 are said to be available, are too lightly built for commercial work. They were produced in immense haste for light war purposes, to rise from a prepared field, drop a certain number of bombs, fire machine-gun ammunition, and return to a prepared aerodrome empty. When required to make forced landings because of engine trouble they crumple up in a majority of cases, frequently crippling or killing the pilot. . . . Single-motor planes must be expected to occasionally develop engine trouble, which necessitates a forced landing for readjustments. These forced landings must be frequently made over fields that are soft from rain or with holes, gulleys, or small obstructions that will turn a plane upon its back while coming to a stop on the ground. Whenever this occurs to a strong commercial machine, such as is used on the New York-Washington run, the damage is usually slight and the delay not serious.[52]

At the same time, the department announced the policy of using rebuilt DeHavillands, if adequate rebuilding proved practicable.

A sample DeHavilland was rebuilt for commercial use during January and February 1919. Bids were then asked on quantity rebuilding, the specifications calling for 17 specific changes. These included installing larger gasoline tanks, a stronger landing gear, and a different

[52] Otto Praeger, "Aerial Mail in the United States and Abroad," *Flying*, March 1919, Vol. 8, pp. 144-47.

instrument board; strengthening the main structural members; and rebuilding the gunner's cockpit into a mail compartment.[53] Contracts were let, and upon receipt of a number of rebuilt machines, preparations for service between New York and Chicago were resumed.

The inauguration of service between Chicago and Cleveland on May 15, 1919[54] showed the chastening effect of experience. The start was delayed until summer weather was at hand and the easy division of the New York-Chicago airway was covered.

The more difficult part of the route, New York to Cleveland, was not placed in operation until July 1, 1919. A half-way refueling stop was provided for at Bellefonte, Pennsylvania, and emergency fields were located at Lehighton and Clarion, Pennsylvania. No other emergency landing fields along the route were definitely controlled, although suitable landing places had been spotted from the air.

Flying over the Alleghenies offered peculiar difficulties. Although the mountains are not high, the district includes few natural areas suitable for landing. The slopes are heavily wooded, and the valleys are frequently filled with an early morning fog which leaves only the tops of the ridges as landmarks. Topographic conditions make the area a storm center, and cause high velocity winds of variable direction. In spite of these unfavorable conditions, however, the new route was operated with considerable success during July, August, and September 1919. Meanwhile, the nature of the postal service originally planned had to be somewhat changed.

Extra postage for air mail was abandoned on July 18,

[53] "Post Office Department Asks for Bids to Modify D.H. 4's," *Aerial Age*, Mar. 3, 1919, Vol. 8, p. 1265.

[54] Post Office Department, *Air Mail*, p. 2.

1919, and from then until July 1, 1924 the airplanes were filled with ordinary first-class mail.[55] The essential reason for the change was lack of patronage, although there were other complications.[56] After this date the air mail service functioned mainly as an auxiliary of the railway mail service. Mail collected at terminal centers after the departure of fast trains was accelerated and placed on trains at some point along the way, or mail taken from trains at junction points was advanced to destination by a few hours.

During 1920 extensions were made which completed the route mileage to be operated by the Post Office Department. Service to San Francisco had been an ideal from the beginning, but crossing the Western deserts and mountains was regarded with grave misgivings. On February 9, 1920 a department official testified before a Senate committee that no airplane in the country could safely fly across the mountains, and stated that it was difficult to get a loaded DeHavilland into the air from airports at an altitude of 6,000 feet, especially under some atmospheric conditions. But he agreed that the Chicago to San Francisco route was the most important one under consideration. Because of the variety and difficulty of the conditions presented, he felt that it offered

[55] The same, p. 3.

[56] The department had adopted the practice of completing airplane loads with first-class mail soon after the beginning of service between New York and Washington, because the volume of specially paid air mail proved ridiculously small. When the practice of adding first-class mail came to the attention of the Chairman of the Committee on the Post Office and Post Roads of the House of Representatives, he considered the practice discriminatory, in that persons who did not pay extra postage received the same service as those who did. The department's move was probably designed to forestall legislation prohibiting the transportation of mail by air unless special postage were paid. *Loss of Mail by Aeroplane Fire*, Hearing, House Committee on Post Office and Post Roads, July 19, 1919, p. 6.

distinct experimental value, in addition to its postal value. The route was also regarded as of great military value. Brigadier General William Mitchell appeared before the committee and emphasized the desire of the Army for a prepared airway over which military aviators could move from coast to coast without difficulty.[57]

In spite of misgivings, therefore, the service was extended from Chicago to Omaha on May 15, 1920, and from Omaha to San Francisco on September 10, 1920. The route followed the tracks of the Union Pacific and Western Pacific railroads throughout much of the distance, thereby taking advantage of the lowest passes through the mountains, staying close to established lines of communication, and making it possible to put the mail on trains with little delay when airplanes were forced down.

Service between Omaha and San Francisco was begun with a minimum of preparation. During the summer of 1920 a representative of the Post Office Department went through the territory and persuaded cities along the route to provide airports and hangars.[58] Otherwise preparations were extremely limited. The official in charge of construction followed the theory that the requisites of successful operation could best be determined after the beginning of service.[59] No emergency fields were provided.

[57] *Post Office Appropriation Bill*, 1921, Hearings, Senate Committee on Post Offices and Post Roads, Feb. 9, 1920, pp. 265-66, 285.

[58] The cities were assured that they would be repaid for their out-of-pocket expenditures, except for land, to which they retained title. They never were repaid, although attempts were made for years to secure payment from Congress. The representative of the department may have exceeded his authority, but he had been sent on a mission otherwise incapable of fulfilment. *Flying Fields and Hangars—Air Mail Service*, Hearing, House Committee on the Post Office and Post Roads, May 3, 1926, pp. 1-33.

[59] *Air Mail Service*, Hearings, the same, Feb. 25, 1921, Part 2, p. 39.

Two other extensions of service were made during 1920, one from Chicago to St. Louis on August 16, 1920, and the other from Chicago to Minneapolis on November 29, 1920. The reasons for the establishment of these routes have never been clear. They had received no Congressional authorization, and the problems of operation on the transcontinental route were far from solved. They were regarded as "feeder routes" for the transcontinental, although they can hardly have functioned as such under a régime of day flying. However, early inauguration of night flying was expected, the Post Office Department was committed to a program of rapid expansion, and the trade bodies of St. Louis and the Twin Cities were eager to have the service.

No further extension of route mileage occurred under government operation. A change of policy took place in the spring of 1921, not only because of the changes in personnel after the inauguration of President Harding, but because the previous policies had given rise to dissatisfaction in Congress. The low quality of the performance actually achieved prior to 1921 was an important cause of Congressional distrust.

IV. QUALITY OF PERFORMANCE TO 1921

The air mail service was subjected to examination by outside experts early in 1921. It happened that the Joint Commission on Postal Service was then carrying on an investigation of the affairs of the Post Office Department under Congressional authorization, and engaged the firm of W. B. Richards & Company as consultants. Engineers in their employ visited a number of air mail terminals, and prepared reports on the basis of this first-hand investigation of field practices and records.

The New York-Washington route was found to be

operating with fair efficiency from a management standpoint, although the engineers found that air mail from New York to Washington had averaged 50 minutes late from April 1 to November 31, 1920. Moreover, in order to show some advantage over train time, an airport in New Jersey was being used, rather than the transcontinental route terminal on Long Island. This New Jersey airport was described as a small and exceptionally dangerous field, lying alongside of factories with high chimneys. Two pilots were said to have been killed by flying into these chimneys. Immediate discontinuance of the New York-Washington route was recommended, because of its complete lack of utility.[60]

The New York-Cleveland route was found to be operating with something less than the efficiency which might reasonably have been expected. Hazelhurst Field on Long Island, the headquarters, was said to be the worst managed of the fields on this route. A memorandum report of a field trip was submitted as representative of conditions at this field. In the words of the engineers:

> When we arrived at the field about 6:30 we found one mechanic working on the plane. We were informed that five men were due at 5:30 to put the plane in condition, but that three had failed to put in an appearance.
>
> . . . . . .
>
> The pilot was in the hangar about 6:30. At 6:40 a third man of the crew arrived.
>
> The work on the plane was very rushed and so disorganized that an omission in adjustment would have been easy and the natural thing to do, such as the omission of putting on oil caps.
>
> The plane left at 7 o'clock, which is 30 minutes behind schedule time.
>
> . . . . . .

[60] *The Postal Service*, Hearings, Joint Commission on Postal Service, Feb. 21, 1921, pp. 78, 80.

The men who were there seemed to exert every effort to get the plane ready, but such haste certainly will be a cause of failure of planes from time to time.

After the engine was tuned up it was discovered by one of the mechanics that the elastic band on the tail skag had become loosened. This was not remedied and investigation later proved that the machine was damaged in landing at the end of the run, due to this negligence.[61]

Management at other fields was evidently none too good, judging by the results found to have been accomplished. During the period between April 1 and December 31, 1920, only 55 per cent of the flights scheduled from Cleveland to New York were found to have been actually completed. Mail carried on these flights arrived on the average 3 hours and 33 minutes late, which meant that in most cases it could as well have remained on the train from which it was taken at Cleveland. Similar results were obtained on the west-bound flights. In summary, the witness concluded:

. . . the performance in general is substantially around 50 to 60 per cent, and we do not feel that the line is operating anywhere nearly as well as it can be; that is, we think there are much greater possibilities for the operation of that line than it shows now.[62]

Not the least interesting conclusion was that on the unreliability of official statistics. Speaking generally of the whole postal service, the witness stated:

To summarize our findings in the department here, the information that is given out by the department in its reports is to a great extent unreliable. It is based upon estimates that have little or no foundation in some cases. A great deal of it has been, it would seem, for the purpose of indicating facts that were not true.[63]

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[61] The same, pp. 82, 91.
[62] The same, p. 84.
[63] The same, Apr. 6, 1921, p. 174.

With special reference to the air mail, the witness said:

> In the airplane service we have visited the flying fields and obtained the original information at the flying fields, which we found differed quite a bit from the information that was on file at Washington, and in general we have gone about this matter with the idea of getting information as nearly first hand as possible.[64]

However, the official statistics present the only continuous time series. Studied as such, some interesting conclusions may be extracted. Probably the statistics most indicative of the trend of performance are the monthly reports of forced landings because of weather and of mechanical difficulties. From these statistics it is possible to compute the average number of miles flown between forced landings in each month.

Miles flown per forced landing because of weather when examined show a strongly marked seasonal variation, as might be expected, but movements other than seasonal indicate high performance in the third quarter of 1919, followed by decline to a low point in the first quarter of 1921. The number of miles per forced landing because of weather averaged 3,047 during the fourth quarter of 1919, but only 1,373 during the same quarter of 1920, and dropped to 1,156 during the first quarter of 1921.

Miles flown per forced landing because of mechanical trouble also show seasonal variation, but point to more significant conclusions. The quarterly average stood at 11,364 during the third quarter of 1919, fell to 3,878 in the fourth quarter, made no recovery during the summer of 1920, reached a low of 1,602 in the fourth quarter of 1920, and recovered slightly to 1,653 in the first quarter of 1921. Movements in this average should in-

[64] The same, p. 176.

dicate either improvement or deterioration in methods of maintenance and operation. The situation was complicated by the addition of route mileage up to the end of 1920. It is therefore impossible to conclude that performance declined on the first sections opened; but one can conclude that expansion was much too rapid under the circumstances, if a reasonable standard of maintenance was to be held for the entire service.[65]

A tragic concomitant of rapid expansion was the large number of fatalities. Two pilots were killed in service during the fiscal year 1919; five in 1920; and twelve in 1921. Miles flown per pilot fatality during the fiscal year 1919 amounted to 97,493; in 1920, to 129,680, and in 1921, to 147,554.[66] Pilots were then flying about 40,000 miles a year,[67] and the average life expectancy of the group during the fiscal year 1921 was thus not above four years.

Various reasons account for these fatalities. Probably the inexperience of the pilots should be mentioned first. Few pilots are now hired for scheduled transport flying with less than 1,500 hours in the air to their credit. In 1918 few such pilots existed in the United States. For the most part, the air mail service was manned during the first three years by pilots who had been hurriedly trained during the war, seen some service, and been demobilized.[68] After joining the service, pilots

[65] The quarterly averages were computed from *Reports of the Postmaster General*, 1919, p. 171 1920, p. 172; 1921, p. 164.

[66] The same, 1927, p. 132.

[67] In November 1921, the employed pilots were 43 in number. *First Deficiency Appropriation Bill*, 1922, Hearings, House Committee on Appropriations, Nov. 10, 1921, pp. 234-36. Miles flown during the fiscal year 1922 numbered 1,727,265. *Report of the Postmaster General*, 1927, p. 132.

[68] Those hired early in 1919 may not have averaged over 200 hours' experience, in the opinion of Mr. James C. Edgerton.

gained experience slowly as they flew only ten hours a week or less. Not before 1921 would a substantial part of the group have been well beyond the most dangerous part of their flying experience.

Another early hazard resulted from the ignorance of department officials of the real danger involved in all-weather flying. In the face of all past experience, the service was started on the premise that mail was to be carried daily on schedule, regardless of weather. After a year of operation, this point of view was still being maintained with sufficient tenacity to provoke a pilots' strike in July 1919, following the discharge of two pilots for refusal to fly in bad weather. The right to decide whether to fly during bad weather was demanded by the strikers, who finally accepted a compromise placing the decision in the hands of the local field manager.[69] Thereafter, pilots refusing to fly when ordered out by the field manager were automatically suspended, pending inquiry. Flying continued to a considerable extent in exceedingly bad weather, as witnessed by the results recorded in the fatality and crash lists of the early years.[70]

The usual reason given for the early pilot fatalities was the use of rebuilt war surplus airplanes. It is mentioned third because there is some reason to believe that this factor has been exaggerated. Bad rebuilding and bad maintenance were undoubtedly factors; but the mere fact that the airplanes were war surplus stock does not seem to have been of primary importance. Nothing but rebuilt airplanes were used during the fiscal year 1922, with only one fatality, and even before that date they

[69] *New York Times*, July 25-28, 1919.
[70] *Aircraft*, Hearings, President's Aircraft Board, 1925, pp. 297-303.

compared favorably with commercial airplanes purchased new. Most of the fatalities occurred in rebuilt DeHavillands, which is not surprising in view of the fact that they were used the most. Motor trouble with the Liberty engine frequently caused crash landings in which the airplane was "washed out," but it caused far fewer fatalities than did bad weather.

The general reason both for low performance and high mortality was the rapid expansion of activities. Over-expansion led to spreading a shoe-string line across the country before any part of the system was operating well. It led to the induction of personnel into the service much more rapidly than it could be trained, with bad maintenance and forced landings as a consequence. It starved essential research in radio communication and weather service, despite expenditures on the entire service of $4,649,158, nearly double the amount Congress had intended to appropriate.[11]

Nevertheless, even the low grade of performance actually attained was an achievement. The record of the period could be placed in rather a favorable light by comparison with the equally struggling attempts then being carried on over far less difficult routes in other countries. Even the failures of the period foreshadowed eventual success.

[11] For the fiscal year 1918 through 1921 appropriations were $2,425,000 and expenditures $4,649,158. (The same, p. 134.) Funds appropriated for other forms of mail transportation were used in part for air mail service in addition to the amounts specifically appropriated for this purpose by Congress. Such transfers of funds to uses not intended by Congress were common prior to the accounting reforms of 1921.

CHAPTER II

GOVERNMENT OPERATION, 1921-27

The origin of the air mail service and the difficulties of its organization period have just been related. The present chapter covers the period from 1921 to the end of government operation of air transport in 1927. No further expansion of route mileage took place; instead the period was one of development of methods of operation designed to assure reasonable safety and a worthwhile postal service.

I. ATTAINMENT OF SAFETY AND EFFICIENCY IN OPERATION

When the new postal administration of 1921 entered office, it found an air mail service of very dubious postal utility. Moreover, Congressional antagonism had been aroused by the maintenance of service on unauthorized routes, by the expenditure of funds which had been appropriated for other purposes, and by the appalling number of fatalities in the service. The new Postmaster General decided not to abandon the service, however, because he considered it of distinct value as a military reserve.[1]

Plans for reorganization were made instead. In the words of the new Second Assistant Postmaster General:

> The whole matter was given very serious consideration. A careful check up indicated that most of the operating difficulties came from too rapid expansion without providing necessary facilities with which to operate efficiently. Then there was the necessity for getting four square with the committees in Con-

[1] *New York Times*, June 5, 1921, Part VII, p. 1.

gress, so we decided to start a new deal all around; first, to carry out the intent of Congress; . . . second, to align ourselves with the expressed desire of the administration for economy; and third, to put into effect my own thought that we would be helping aviation in a much more beneficial way if we stopped the too rapid expansion, . . . and instead concentrated our efforts on standardizing and perfecting the operation on a more restricted route.[2]

These plans were faithfully carried out. The three short feeder routes were discontinued, New York-Washington on May 31, 1921, and Chicago-St. Louis and Chicago-Minneapolis on June 30, 1921. Elimination of these routes permitted an annual saving in expenses of $675,000.[3] The number of persons employed was reduced over a period of 18 months from 521 to 418.[4] Wages and salaries were cut throughout the service.[5] The supervisory staff was thoroughly overhauled, with considerable displacement of personnel and the appointment of a new general superintendent.[6]

Airplane repair and rebuilding operations were centralized at a repair base in Chicago which became almost an airplane factory. Previously, much of the rebuilding had been done by outside firms, at considerable expense to the service and with results which had not been entirely satisfactory. After July 1, 1921 the war surplus

[2] E. H. Shaughnessy, "United States Air Mail Service," *Aviation*, Jan. 23, 1922, Vol. 12, pp. 96-99.

[3] *First Deficiency Appropriation Bill*, 1922, Hearings, House Committee on Appropriations, Nov. 10, 1921, p. 246.

[4] *Post Office Appropriation Bill*, 1923, Hearings, Senate Committee on Post Offices and Post Roads, Feb. 23, 1922, 2, p. 140; the same, 1924, Hearings, House Committee on Appropriations, Dec. 19, 1922, p. 237.

[5] The same, 1923, Hearings, House Committee on Appropriations, Dec. 14, 1921, p. 284.

[6] "Air Mail Changes," *Aviation*, June 20, 1921, Vol. 10, p. 784; *New York Times*, June 18, 1921, p. 2.

DeHavilland airplanes received from the Army and the airplanes damaged in service were rebuilt at the repair base, at a substantial saving in cost and notwithstanding the reductions in the total personnel of the service. The cost was low because of the steady flow of work, something over one airplane a week being rebuilt, and because of the accumulation of parts from war surplus airplanes and from crashed airplanes which had been salvaged.

Constant rebuilding made possible the modification of the airplane type about as rapidly as experience dictated the desirability of change. The flimsy war-built DeHavilland slowly evolved into a rugged, dependable craft with good balance, adequate reserve power, and much greater carrying capacity than it had originally possessed. During the latter part of 1921 an outside firm remodeled a DeHavilland to bring its capacity up to 850 pounds, while improving it in some other respects.[7] Similar changes were made by the service in many of its airplanes as they went through the repair shop during the remainder of the fiscal year 1922, with the result that 38.5 per cent more mail was carried during the fiscal year 1923 than during 1922, although only 3.4 per cent more miles were flown.[8]

Rebuilding in the service's own shop greatly increased the dependability of the equipment in use.[9] Larger re-

[7] "New U. S. Mail Airplane, Type DH-M2," *Aviation*, Oct. 24, 1921, Vol. 11, p. 476.

[8] *Report of the Postmaster General*, 1927, p. 132.

[9] The Superintendent of Air Mail Service testified several years later that when reconditioning was being done under contract, before the service had its own facilities, he believed that some airplanes received after reconditioning were still unsafe. (*Aircraft*, Hearings, President's Aircraft Board, 1925, p. 287.) He attributed considerable improvement in safety to the practice of opening the wings, inspecting all parts, and recovering. This practice was established in June 1921. *Post Office Ap-*

serves of reliable airplanes were maintained, thereby incidentally making possible the assignment to each pilot of a particular airplane, to which he could become accustomed. Moreover, standardization on the rebuilt De-Havilland model furthered a high degree of familiarity with the airplane on the part of pilots and mechanics. A daily routine of maintenance and rigid inspection was set up and adhered to, and when a successful parachute for use in airplanes became available about this time one was provided for any pilot who desired it.

Control of airplane movements was facilitated by the completion of a chain of radio stations at airports. The decision to build stations had been made in 1920, but they were not completed until the fiscal year 1922. In all, 17 were built. They aided greatly in the collection and distribution of weather information, and after their installation airplanes were dispatched only after reports of weather conditions at the next airport.[10]

The effect of the improved methods of operation was clearly shown. Forced landings because of mechanical difficulties declined from 810 during the fiscal year 1921 to 281 during 1922. Miles flown with mail declined only from 1,554,985 to 1,537,927. The discontinuance of the three short routes was almost counterbalanced by an increase from 86 to 94 in the percentage of scheduled miles actually flown annually.[11] Although larger loads were carried, operating and maintenance cost was reduced from 85 to 71 cents a mile almost at once.[12] A "safety-

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propriation Bill, 1923, Hearings, Senate Committee on Post Offices and Post Roads, Feb. 7, 1922, Part 1, pp. 82-83.

[10] *Report of the Postmaster General*, 1921, p. 47; 1922, p. 34.

[11] The same, 1927, p. 132.

[12] The same, 1921, p. 46.

first" campaign was begun, and the policy was laid down that in cases of conflict between safety and high performance, safety was to prevail. Fatalities were greatly reduced through this policy and the improved methods of operation, none at all occurring from July 6, 1921 to September 7, 1922.[13] More sympathetic treatment of personnel led to a great improvement in morale and the building up of an *esprit de corps* which was frequently the subject of favorable comment during the remaining years of the service.[14]

Many of the changes were made under the stimulus of lean appropriations. After stopping expenditures from unauthorized appropriations, a deficiency appropriation was necessary to finish out the fiscal year 1921, and $125,000 was obtained.[15] A similar necessity existed for supplementing the 1922 appropriation of $1,250,000; $350,000 was asked for, and $175,000 received.[16] For the fiscal year 1923 the department asked $1,935,000, and stated that the whole was necessary for safe operation. It expected to end the fiscal year 1922 with equipment in a low state of repair because of the small deficiency appropriation formerly granted.[17] This time it received $1,900,000.[18] With this appropriation in hand, it proved possible to go ahead with the technical work necessary for progress.

[13] *Aircraft*, Hearings, President's Aircraft Board, 1925, p. 299.

[14] For example, "Air Mail Service," *Aviation*, Oct. 16, 1922, Vol. 13. p. 489.

[15] *Cong. Record*, June 8, 1921, Vol. 61, p. 2272; 42 Stat. L., 42.

[16] *First Deficiency Appropriation Bill*, 1922, Hearings, House Committee on Appropriations, Nov. 10, 1921, p. 233; 42 Stat. L., 335.

[17] *Post Office Appropriation Bill*, 1923, Hearings, Senate Committee on Post Offices and Post Roads, Feb. 7, 1922, p. 91.

[18] 42 Stat. L., 657.

II. NIGHT FLYING EXPERIMENTATION AND FINAL SUCCESS

Night flying is now commonplace, but its origin as part of a regular service was attended by difficulties. Credit for first solving these difficulties on any substantial scale must go to the United States Post Office Department, which was forced to find solutions by the nature of the air transport operation it had undertaken.

Postal officials saw the need for night flying early in their experience with air transport operation. Plans laid before Congress in December 1918 included the beginning of night service between New York and Chicago the following spring.[19] Day flying over the New York-Chicago route was soon found to present sufficient difficulty, and preparations were then made to begin night flying over the level country between Chicago and Cheyenne, Wyoming, as part of the transcontinental service.

Mail was first carried continuously from coast to coast by air in February 1921. The part of the transcontinental route between Chicago and Cheyenne was flown at night. The date chosen for the initial attempt can only be explained by reference to the difficulties then being encountered in getting an air mail appropriation through Congress, but by great good luck, scheduling so hazardous a series of flights in the middle of winter resulted in no casualty directly attributable to the night flying, and did result in the transportation of mail from San Francisco to New York in less than 34 hours.

As illustrations of the personal prowess of the one pilot who did most of the night flying,[20] the flights were a great success. But they did very little to demonstrate

[19] P. 16.
[20] Jack Knight.

the practicability of a regular service. Preparation for the flights at most consisted of some lighting at the airports, a few signal lights along the way, flares for the airplane, and the hope that cities along the route would provide large bonfires.[21] There is some reason to believe that most of the pilots in the service were not favorable to the experiment, which they regarded as ultra-hazardous.

Further plans for night flying were stopped by Colonel E. H. Shaughnessy, the second assistant postmaster general who entered office in 1921, because he did not believe adequate preparation could be made with the funds available.[22] He later stated that he did not believe the Post Office Department should ask funds for route lighting, in view of the impending establishment of the proposed Bureau of Aeronautics in the Department of Commerce.[23]

A few weeks after making this statement, Colonel Shaughnessy was fatally injured in the Knickerbocker Theater disaster. He was replaced by Colonel Paul Henderson, who is on record as follows:

> My first impression of the air mail, as I found it in the spring of 1922, was that it was an impractical sort of fad, and that it had no place in the serious job of postal transportation. . . .
>
> It soon became plain to me that if airplanes were entitled to a permanent place in the general scheme of postal transportation they must be used for continuous flight of mail over relatively long routes. For instance, it seemed to me that real postal advantage might come if we could fly continuously from New York right through to San Francisco. Obviously, this meant

[21] *New York Times*, Feb. 21-25, 1921.

[22] *Commercial Aviation—Air Mail Service*, Hearings, House Committee on the Post Office and Post Roads, Jan. 6, 1922, Part 1, p. 7; Feb. 21, 1922, Part 2, p. 35.

[23] The same, Part 1, p. 7.

flying at night—a thing heretofore never undertaken on a long route or on regular schedule.

I sought advice on the general subject. Over 90 per cent of the advice which came to me was to the effect that it could not be done. Persons who were well informed, to whom I went for advice, discouraged the idea and failed to agree as to their reasons. Some very few encouraged me to make the attempt.[24]

Fifteen months of study and preparation followed.

Upon investigation it was discovered that some attack had been made by others upon the problems incident to adapting airplanes, airports, and airways to night flying. The British affiliate of the American Gas Accumulator Company had been working on airport and airway lighting, at the request of the British Air Ministry, and had installed lighting equipment at Croydon Field and on the London-Paris route in Kent.[25] In France, the Parisian firm of Barbier, Bernard, and Turenne had developed various designs for "land lighthouses," and had erected a number of airway beacons.[26] Apparently these facilities were not used to any great extent because of the lack of demand for passenger service at night.

In this country the Army Air Corps had done a considerable amount of work,[27] primarily in the interest of airplane equipment. Prolonged experimentation with landing lights had led to the development of adequate wing-tip lights, the light from which was not reflected

[24] *Aircraft*, Hearings, President's Aircraft Board, 1925, p. 304.

[25] "Beacons and Wind Indicators for Night Flying," *Aviation*, Nov. 20, 1922, Vol. 13, pp. 688-89.

[26] "Aerial Lighthouses," *Aerial Age*, Feb. 20, 1922, Vol. 14, pp. 564-65, 561. This firm developed the B.B.T. floodlight for airports, now well known in this country. This light was first used experimentally by the air mail service in 1924, later being adopted for general use at airports.

[27] For a detailed account of the Army's activities in connection with night flying, see D. L. Bruner and H. R. Harris, "First Night Airways," *U. S. Air Services*, June 1924, Vol. 9, No. 6, pp. 7-13.

into the eyes of the pilot by the propellor.[28] The Army also provided itself with suitable navigation lights, and developed an improved parachute flare. The claim is also made that the Army was the first to develop complete ground equipment for airports—boundary and obstacle lights, wind indicators, beacon lights—and that it was the first to operate a night airway for a considerable period on schedule. These efforts, however, seem to have been coincident with the air mail experiments and possibly were stimulated by them.

The air mail service went at the problem in earnest after assimilating the results attained by others. The Army's ideas on airplane equipment were adapted to air mail use, and the airway was lighted from Chicago to Cheyenne.[29] This airway, as adapted to night flying, consisted of five airports, floodlighted to give buildings daylight perspective and provided with 36-inch high-intensity arc-type searchlights revolving three times a minute; 34 emergency landing fields, spaced at intervals of about 25 miles and provided with boundary lights and revolving 18-inch beacons; and route marking by means of small acetylene "blinkers" every three miles.[30] Several experimental airplanes were ordered from manufacturers in the hope that equipment with a lower

[28] These lights were the only substantial assistance for which Colonel Henderson gave the Army credit. The first air mail landing lights were built at McCook Field and cost the air mail service several thousand dollars. Other assistance from the Army was confined to advice, "both good and bad." *Aircraft*, Hearings, President's Aircraft Board, 1925, pp. 309, 314.

[29] "Night Flying by Air Mail Service," *Aviation*, Oct. 30, 1922, Vol. 13, p. 607. This article gives a good summary of the special problems involved in connection with airplanes and airports.

[30] *Post Office Appropriation Bill*, 1925, Hearings, House Committee on Appropriations, Dec. 31, 1923, p. 163. This source reprints the text of a report to the Postmaster General on the 1923 night flying experiment (pp. 163-66). Credit was given to the General Electric Company, the American Gas Accumulator Company, and the Sperry Instrument

landing speed than the DeHavilland might be obtained before beginning night flying. At least three manufacturers built sample airplanes designed especially for night air mail service, but the first trial flights were conducted before the airplanes were received.[31] Experimental work on radio communication with airplanes in flight was also carried on as part of the preparation for night flying, but no suitable receiving set was developed in time for use. Pilots were given an opportunity to practice night flying and several volunteered for service on the first official test.

Night flying on regular schedule was carried on during a four-day test period, from August 21 to 25, 1923. The results of this test were exceptionally satisfactory. In the words of Colonel Henderson:

> As far as the night flying part of our test flights is concerned, our operation was 100 per cent satisfactory. There were no forced landings, no defaults, no accidents, in fact no near accidents.
>
> Looking at the test from the point of view of a transcontinental mail service, there was but one interruption to a 100 per cent achievement. That occurred on the afternoon of the 21st, just west of Cheyenne, Wyo., on that part of the course which is flown over in the daytime. The eastbound ship was forced to land at Laramie, Wyo., about 5 o'clock in the afternoon because of an unusually heavy fog. . . .
>
> The best time made eastbound on any of the four days was 26 hours and 14 minutes. The best time westbound was 29 hours and 38 minutes.[32]

Company for especially thorough assistance in developing the illuminating equipment used (p. 163). The illuminating equipment used in 1923 and 1924 is described in some detail in Post Office Department, *Air Mail*, p. 4.

[31] *Aviation*, Sept. 3, 1923, Vol. 15, pp. 270-75.

[32] *Post Office Appropriation Bill*, 1925, Hearings, House Committee on Appropriations, Dec. 31, 1923, p. 165.

No further night flying was carried on until a year later. The reason for delay was the fact that only $1,500,000 had been appropriated for the fiscal year 1924. A request had been made for $2,500,000 in order to be able to continue night flying after an initial experimental period, but Congress was skeptical until after the actual demonstration. A change of attitude followed and $2,750,000 was granted the following year. The intervening time was employed to some advantage in further development of night flying appliances. The lighted airway was also extended from Cheyenne to Rock Springs, Wyoming, and from Chicago to Cleveland in the summer of 1924, in order to provide for operation during the longer winter nights. The purchase of new airplanes was postponed, but a number of the DeHavillands were equipped with newly designed wings built by the Loening Aeronautical Engineering Corporation. With these wings and a new propeller, a DeHavilland with 500 pounds of cargo could cruise at 131 miles an hour and land at 45, an increase in maximum speed of about ten miles an hour and a decrease in landing speed of about 15.[83] The limited cargo capacity was considered ample, since special air mail postage rates were contemplated. Further radio experimentation was carried on, but the results appear not to have warranted the installation of equipment, and the experimentation was eventually stopped by a decision of the Comptroller General.[84]

Regular transcontinental service was begun on July 1, 1924. Despite the fact that eight of the first 15 nights

[83] "Loening DH Mail Plane Tested," *Aviation*, June 2, 1924, Vol. 16, p. 596.

[84] *Department of Commerce Appropriation Bill*, 1928, Hearings, House Committee on Appropriations, Jan. 4, 1927, p. 277.

were stormy, no defaults occurred during that period, and the inauguration of the service was regarded as highly successful.[85] The westbound service was scheduled in less than 35 hours, the eastbound in less than 30, making it possible to carry mail the length of the route with third morning delivery. Prevailing winds accounted for the difference in time.

The achievement of regular night flying provided a postal service of some merit, and made it possible to inaugurate special postage rates for air mail service on July 1, 1924. The route was divided into three zones, New York-Chicago, Chicago-Cheyenne, and Cheyenne-San Francisco, and 8 cents per ounce per zone was charged. The service brought in revenue in excess of the regular first-class postage rate of at least $602,627.54 during the first year of operation. Only specially paid mail was carried. The revenue was far below the cost of the service, but indicated that at least a start could be made towards self-support.[86]

An overnight service between New York and Chicago was the next project planned. It involved a far more difficult type of airway construction than had previously been met, if any degree of safety were to be attained between Cleveland and New York. The direct route and possible alternative routes were carefully studied both from the air and the ground. Intensive search was necessary in order to locate suitable emergency fields

[85] "United States Day and Night Transcontinental Air Mail Service," *Flight*, Sept. 18, 1924, Vol. 16, pp. 574-75. Even the editor of the "official organ of the Royal Aero Club of the United Kingdom" was "irresistibly reminded of the early days of America's history, when the 'Pony Mail' was carried through by daring riders who had to contend with adverse climatic conditions, not to mention the risks of attack by Indians." "Day and Night Air Mails," the same, pp. 571-72.

[86] *Report of the Postmaster General*, 1925, p. 29. This revenue figure represented sale of special stamps, and may therefore understate considerably the actual excess postage received.

along the difficult sections of the route in Pennsylvania, parts of which required fields at ten-mile intervals. Fields averaging 38 acres in size were finally located, rented, cleared, graded, and sometimes drained. Lighting equipment was installed, and a caretaker engaged for each field. The small acetylene blinkers proved inadequate for route marking in rolling country, and other types of beacons were experimented with. The huge 36-inch high-intensity arc-type searchlights at terminal airports were dispensed with, experience having shown that they were not needed on clear nights, while the frequent, small beacons were the main reliance in fog.[87]

The New York-Chicago overnight service was established on July 1, 1925. It was operated in a satisfactory manner from the beginning. The percentage of scheduled miles actually flown in this service varied from 100 in August to 81 in February, averaging 94 for the first fiscal year. Postage of 10 cents per ounce was charged, and revenue in excess of the first-class postage rate derived from the sale of special stamps totaled $160,881.04 during the first year. The number of letters carried was estimated at 4,281,880, on the basis of 40 letters to the pound, the average for first-class mail. If the estimate was correct, the total postal revenue, including receipts from the sale of ordinary stamps for use on air mail, amounted to $428,188, and the revenue in excess of first-class postage was $342,550. The expense of the overnight service was at least $350,000.[88]

The lighted airway was extended west from Rock Springs, Wyoming, to Salt Lake City during the fall of 1925, again involving difficult construction because of

[87] The progress of the airway was reported in *Aviation*, Vol. 17, pp. 1328-29, 1465; Vol. 18, pp. 604-05; Vol. 19, pp. 38-40.

[88] *Report of the Postmaster General*, 1926, pp. 123-25.

the nature of the terrain. No further extensions of lighted airways were made by the Post Office Department, the work of lighting airways being taken over by the newly established Aeronautics Branch of the Department of Commerce in the following year.

III. THE END OF GOVERNMENT OPERATION

Government operation of a transport service for air mail was never envisaged by Congress or the Post Office Department as a permanent policy. Congress was imbued with a deep-seated distrust of government ownership and operation of a transportation enterprise. Postal officials looked upon the operation of the transport service as a temporary excursion into fields alien to the department, necessitated by the lack of satisfactory private contractors.

Legislation providing for the transportation of air mail by contract was obtained in the Air Mail Act of February 2, 1925.[39] As soon as it became evident that contractors could be obtained under an Act which was presumed to permit contract operation at a profit to the government, Congressmen became eager to see the end of government operation.

Postal officials, while willing to relinquish the service, were aware of difficulties. They knew that almost without exception the first contractors would begin operation at a loss, and might be either unable or unwilling to continue the service. The transcontinental route occupied a key position, and if it were taken over by a contractor of inadequate financial strength or operating experience, the whole service might collapse. Contractors had been attracted to the first routes by the possibility of combined schedules under which night operation was con-

[39] This Act will be discussed in the next chapter.

fined for the most part to the government route. It was far from clear that any contractor wished to assume the cost of night flying, particularly the cost of maintaining a fully equipped airway.

The approval of the Air Commerce Act of 1926 facilitated the end of government operation.[40] The Aeronautics Branch of the Department of Commerce was established, and authorized to provide aids to air navigation. The Air Commerce Act provided specifically for the transfer of the transcontinental airway from the Post Office Department to the Department of Commerce whenever it should be agreed upon. Prospective contractors were thus enabled to bid on the transcontinental route with the assurance that the cost of maintaining and operating aids to air navigation along the route would be borne by the Department of Commerce. Of the total route length of 2,666 miles, 2,042 miles were lighted at the time, and the Post Office Department reported annual expense for maintenance and operation of $333,860.90.[41]

The Post Office Department considered advertising the portion of the air mail route between New York and Chicago early in 1926. But it decided to wait until bids could also be obtained for the western end, which it believed no responsible bidder would undertake under the existing conditions. A little later the results of earnest traffic solicitation at Los Angeles by Western Air Express began to be apparent, and the postal prospects for the part of the transcontinental route west of Chicago were materially improved. The Post Office Department learned that a responsible bidder, probably Western Air Express, could be obtained. It therefore decided to

[40] 44 Stat. L., 568. Approved May 20, 1926.
[41] *Report of the Postmaster General*, 1927, p. 135.

advertise both sections of the route. Meanwhile, the Air Mail Act was amended to provide a more favorable basis of payments to contractors, and it was announced that air mail postage rates would be reduced to 10 cents per half ounce on February 1, 1927. These changes made the transcontinental route much more attractive to prospective contractors.[42] The route was divided into two sections, New York-Chicago and Chicago-San Francisco, and advertised for private operation under contract on November 15, 1926.

When the proposals for operation were opened on January 15, 1927, the low bid for the western section was found to be a joint one by the Boeing Airplane Company and Edward Hubbard. It was an offer to carry the mail for $1.50 per pound for the first thousand miles and for $0.15 per pound for each additional hundred miles. The bid was so low by comparison with all previous experience that it caused general amazement.[43] The route was awarded to the joint bidders, who organized Boeing Air Transport to take over the contract.

The original bids for the eastern section of the route, distinctly higher than those for the western section, were all rejected. After the readvertisement of the route, it was awarded to National Air Transport at rates fixed on a sliding scale basis, starting at $1.24 per pound for loads up to 1,500 pounds, with progressive reductions in the rate paid for larger loads, the maximum reduction being 40 per cent for loads in excess of 5,000 pounds.[44]

Liquidation of Post Office Department transport operation was almost complete by December 31, 1927.

[42] See Chaps. III and IV.

[43] "Astonishing Air Mail Bids," *Aviation*, Jan. 24, 1927, Vol. 22, p. 170.

[44] 72 Cong. S. doc. 70, pp. 344-51.

The lighted airway and the radio service, with their operating personnel of approximately 146 employees, were transferred to the Department of Commerce on July 1, 1927. The western part of the transcontinental air mail route was taken over by Boeing Air Transport on the same date. The eastern part was taken over by National Air Transport on September 1, 1927, the delay being due to the readvertising of this portion of the route.[45] Almost the entire operating organization of the government transport service was taken over by the two contractors. Many veteran employees of the government service are still with the two companies, which now operate their respective routes as subsidiaries of United Air Lines, Inc.

The end of government operation was the occasion for many laudatory comments. Probably all aviation groups, including chronic opponents of government ownership and disgruntled manufacturers who had failed to sell airplanes to the Post Office Department, were in accord for the first time. The following tribute, however, came from a journal which had been consistently friendly:

> With the ringing down of the curtain on the United States Air Mail as a government operated service there passed into history an operation that for more than nine years has stood at the head of civil aviation this world over. Ever in the lead of developing the trade of commercial flying, and for years the hope and encouragement of the airplane industry, the United States Air Mail endeared itself to all who gave their best efforts to the development of aviation. As purely a flying operation, the United States Air Mail with its daily round trip service from coast to coast in all weather and across mountain ranges and deserts, and with its brilliant night flying, has won the plaudits of the world.[46]

[45] Post Office Department, *Air Mail*, pp. 5-6.

[46] "Vale—Government Air Mail Service," *Aviation*, Sept. 19, 1927, Vol. 23, p. 665.

IV. THE COST AND THE RESULTS OF THE GOVERNMENT SERVICE

The net cost of the period of government operation cannot be determined accurately, but appears to have been approximately 12 million dollars. The expenditures of the service during government operation totaled $17,411,534.[47] The important offsetting items are the postage derived from air mail in excess of the first-class postage rate, and the property inventory of the service at the end of operation. Excess postage from the sale of special air mail stamps amounted to $2,204,738.29 between July 1, 1924 and January 31, 1927, when the postage count was stopped.[48] The weight statistics indicate that perhaps half as much more was obtained from the use of ordinary stamps on air mail. Operation was continued for several months after the postage count was stopped, but with reduced postage rates and increased traffic. The excess revenue during those months may be estimated at $500,000 or more. The postage received from special air mail rates in 1918 and 1919 was not important, but may have amounted to $150,000. The total offset to be allowed for postage received apparently should be at least 3.5 million dollars.

The offset to be allowed for the plant and equipment of the service is even more difficult to estimate. On June 30, 1927 the property inventory was valued at $3,345,641.[49] When the service was liquidated, much of the equipment was transferred to other government agencies, and the remainder was sold at auction. Although this equipment was war surplus stock valued at a fraction of cost, 2 million dollars is probably a liberal estimate of the liquidation value of the property. If this

[47] Post Office Department, *Air Mail*, p. 9.
[48] *Report of the Postmaster General*, 1927, p. 27.
[49] The same, p. 135.

estimate is used with that given above for postage, the net cost of the period of government operation may be placed at 12 million dollars.

The expenditures on air mail service enabled the Post Office Department to bring together and rigorously to test almost all the elements of what would now be considered a complete air transport system. Service began in 1918 with a handful of men, a few airplanes, and three landing fields. Three years of rapid expansion provided an operating organization of several hundred men, a large amount of flying equipment of poor quality, and about 3,500 miles of inadequately equipped airways. The reforms of 1921 and 1922 improved the quality of supervisory personnel, and raised the standards of airplane building and maintenance. Standards were improved in all respects during the following years, but the greatest contribution was the development of an airway equipped for night flying and the training of pilots in its use. Problems of airport layout and building construction were solved along the way.[50]

Radio equipment was one of the elements of a complete air transport system which had not been fully developed. A system of radio communication between airports was provided in 1920 and 1921, but radio beacons and radio equipment for communication with airplanes in flight had not been brought to successful operation by 1927. Prolonged experimentation had been carried on in an effort to develop both, radio beacon research in particular being pursued for an extended period during which almost all other agencies in this country had lost interest in the subject.[51]

[50] "Housing the Air Mail," *Aviation*, May 18, 1925, Vol. 18, p. 547.

[51] *Department of Commerce Appropriation Bill*, 1928, Hearings, House Committee on Appropriations, Jan. 4, 1927, p. 277.

Weather service was still in a rudimentary stage, but the Weather Bureau co-operated within the limits of its appropriations, and the service cared for its own needs to a considerable extent by using its radio stations to transmit weather reports along the line. In the event of sudden storms at night, caretakers at emergency fields could be ordered by telephone to signal pilots to come down.[82]

The technical achievements of the service necessarily came before its economic achievement in providing a satisfactory postal service. From the postal standpoint, the service was almost worthless prior to the inauguration of regular night flying on July 1, 1924. Night flying was projected from the very beginning, but six years of effort were necessary to its achievement. The intervening time was spent in recruiting, training, and seasoning the requisite personnel; in developing a transport airplane which would prove adequate under service conditions; in establishing and perfecting the operation and maintenance routines necessary for a reasonable degree of safety; and in constructing and equipping a transcontinental airway. When these things had been done, a start could be made towards economic self-support, and that start was made by the inauguration of special air mail postage rates on July 1, 1924.

A substantial volume of patronage was obtained by the special rate service from the beginning, and when government operation was terminated three years later, it proved possible to place the route upon a self-supporting basis. The bids of the two contractors were made with

[82] Special lights were provided for the purpose. A summary description of the organization, personnel, equipment, and operations of the air mail service as of September 1925 may be found in *Aircraft*, Hearings, President's Aircraft Board, 1925, pp. 289-97.

knowledge of the postage rates to be placed in effect on February 1, 1927, and were equivalent respectively to $3.00 and $3.43 per ton mile.[53] The average revenue from air mail at the time was probably about $4.00 per ton mile.[54] The new contract routes thus appear to have been self-supporting, aside from the cost of lighting the routes, and probably remained so until the reduction in air mail postage rates on August 1, 1928.

Several factors account for the fact that the transcontinental route was probably self-supporting under private operation, although it had not been under government operation. Some economies in operation may have been achieved at once, although they cannot have been large, in view of the fact that the operating personnel and methods remained to a large extent the same. The contractors undoubtedly began operation at a loss in the hope of future profit; to the extent of that loss, the route was self-supporting from the standpoint of the government only through the transfer of loss to private capital. Of probably greatest importance was the increase in the volume of traffic over the route, which was due in no small degree to active solicitation on the part of the contractors. Traffic solicitation was undoubtedly the weakest point in government operation.

[53] Computed from $1.50 per pound per thousand miles west of Chicago and $1.24 per pound between New York and Chicago, a distance of 723 miles. The rate of $3.43 per ton mile east of Chicago is based upon the assumption that all the mail moved the length of the route, and was higher to the extent that this assumption was not true.

[54] The department did not begin to collect ton mile statistics until the fiscal year 1931, but during that year the average ton mile revenue was close to $1.88. (Post Office Department, *Appendix to the Cost Ascertainment Report*, 1931, tables 1 and 5.) Air mail postage rates in 1927 were more than double the rates prevailing in 1931. If no significant change in average length of trip is assumed, and the assumption seems reasonable although it cannot be checked, the average revenue in 1927 may be put at about $4.00 per ton mile.

A net expenditure of about 12 million dollars in the development of air transport in the United States during the period of government operation does not seem an exorbitant or ill-advised expenditure, in view of the results attained. The expenditure might not have been incurred if the expense and length of the process had been correctly foreseen at the outset. In that respect, air transport has much in common with other industries whose origins have been marked by long and difficult periods of technical development. In the absence of large government expenditures for development expense, the same progress would no doubt have occurred, but it would have come piecemeal and over a much longer period of time.

An alternative method of making the expenditures could have been adopted, that of conducting the same service under contract at a heavy loss. In the view of the writer, this method was wisely avoided by Congress. None of the merits traditionally ascribed to private enterprise are to be discovered when the only hope of private profit within a measurable future is to be found in a direct drain upon the public treasury. Some public services conducted at a loss can doubtless be conducted at a smaller loss under contract, but this is only true if the nature of the service is well known. It then becomes possible either to award contracts by competitive bidding, or else to supervise rigidly the costs of the contractor. Neither competitive bidding nor cost supervision is an adequate check on private profit-seeking when the service to be purchased is development work of an intangible sort, designed to discover that which may not exist.

The development work of the government service was so successful that world leadership in air transport

during the period may well be claimed for the United States. The popular misapprehension to the contrary was due to the almost complete lack of air passenger services. Air mail was a more suitable class of traffic for a dangerous and costly experimental service, and the attempt to obtain air mail traffic was more of a spur to technical progress than an attempt at passenger service would have been. Passenger traffic is more seasonal than mail, and thus offers less incentive to all-year operation; it is more sensitive to bad weather, and thus offers less incentive to all-weather flying. The incentive to the development of night flying came entirely from the needs of the postal service. It thus was fortunate that the early development of air transport in the United States centered upon the transportation of mail, and equally fortunate that the postal officials of the period for the most part rose to their opportunity in a highly commendable manner.

CHAPTER III

LEGISLATION FOR CONTRACT OPERATION

In the preceding chapters attention has been centered upon the development of the air transport service operated up to 1927 by the Post Office Department. During much of the period covered, attempts were also being made to provide for the transportation of air mail by contract. Proposed legislation was considered at length in 1922; and a return to the subject in 1924 led to the enactment of the Air Mail Act of February 2, 1925. Contracts for air mail transportation were then awarded, and for more than a year government and contract operation of air mail routes went on side by side. The present chapter reviews briefly the evolution of the legislation which established the contract system.

I. THE AIR MAIL ACT OF 1925

The Air Mail Act of February 2, 1925 was the legislative result of the consideration given a series of bills. The first bill of the series was introduced on December 10, 1921 by Chairman Halvor Steenerson of the House Committee on the Post Office and Post Roads. It authorized the Postmaster General to contract for the transportation of mail by aircraft, provided for air mail postage rates of three times first-class mail rates, and limited the compensation of contractors to two-thirds of the air mail postage.[1]

If this bill had been approved, it would have had three

[1] 67 Cong. H.R. 9462.

important consequences: (1) The mail carried by contractors would have been limited to specially paid mail; (2) the burden of soliciting traffic would have been placed upon the contractors, since their compensation would have depended directly upon the volume of traffic; (3) payments to contractors would have been limited in a way which appeared to prevent any possibility of loss to the government. Loss could have been prevented with certainty under the terms of the bill, however, only if the air mail postage rate was charged separately for each contract route over which a letter might move; otherwise, two or more contractors might be entitled to two-thirds of the postage from a given letter.

The bill met the general approval of Colonel Shaughnessy, then second assistant postmaster general, who favored the retirement of the government from operation of the transport service.[2] Representatives of the aviation industry appeared at hearings on the bill and from the welter of testimony given it appears that opinion in the industry was almost unanimous on the following points: (1) A guarantee of a minimum load was desirable, because prospective contractors were skeptical as to the volume of mail which would be available at special postage rates; (2) a contract period of from three to five years was essential; (3) a subsidy was abhorrent, because contractors considered it un-American; (4) basic legislation providing for regulation in the interests of safety and for the establishment of aids to air navigation was prerequisite to the development of any form of air transport.

The desire of prospective contractors to escape the bur-

[2] *Commercial Aviation—Air Mail Service*, Hearings, House Committee on the Post Office and Post Roads, Jan. 6, 1922, Part 1, pp. 4-11.

den of soliciting business for the Post Office Department is readily understandable. In this case it was reinforced by a firm conviction that very little business would result from any amount of solicitation. The Secretary of the Aeronautical Chamber of Commerce testified that members of his organization almost to a one agreed on this point.[3]

On the question of subsidy, the opinion in the industry appeared somewhat divided, but was not divided in actuality. The appearance of division was due merely to a difference of opinion as to the meaning of the word "subsidy." No witness was opposed to a service conducted at a loss to the government; in fact, most of them favored such a service. Yet almost all disclaimed any desire for a subsidy. After Congressman Ramseyer had stated flatly that Congress would not stand for a bill authorizing a subsidy, meaning a loss, one witness said: "You mentioned the word 'subsidies.' There has been no intention on our part of ever desiring a subsidy for carrying mail. A subsidy as we get it is something in addition to one's cost. We are not asking anything in addition to our cost."[4]

New legislation was drafted in the light of the discussion of the first Steenerson bill. Congressmen Clyde Kelly and C. W. Ramseyer together prepared a bill which Mr. Kelly introduced.[5] This bill provided for the compensation of carriers at the rate of one mill per pound mile. In conjunction with an air mail postage rate of 5 cents per ounce or fraction thereof, loss would have been prevented on air mail letters of ordinary weight moving less than 1,850 miles. The wishes of prospective contractors were met by providing for minimum loads, to be

[3] The same, Feb. 21, 1922, Part 2, p. 48.
[4] The same, p. 46.
[5] 67 Cong. H.R. 10717, Mar. 3, 1922.

completed by adding first-class mail to specially paid air mail.

The loss to the government on such first-class mail would have been substantial, as compared with the cost of other transportation. Further, since contractors would have been paid at the same rate for both air mail and ordinary first-class mail, they would have had no direct incentive to promote the use of air mail. Had rates of compensation applied to air mail only, the contractors would have had a substantial incentive to promote its use, but probably would have operated at a loss.

Mr. Steenerson then introduced another bill, which contained certain new features.[6] The proposed mandatory air mail postage rate was changed to a minimum postage rate of 6 cents an ounce, and two maximum rates of compensation for contractors were adopted, one of 2 mills per pound mile for air mail and the other of one-half mill per pound mile for ordinary first-class mail.

Further hearings were held on the new Kelly and Steenerson bills, at which the testimony was distinctly more favorable to legislation based on special postage for air mail.[7] No bill was reported by the committee during 1922. The second Steenerson bill, H.R. 11193, was reported early in 1923, but no action was taken.[8] It was unfortunate that the bill as reported did not pass. Its terms did not require that it be put into effect immediately, and it was undoubtedly superior to the Act finally passed two years later.

The bill which became the Air Mail Act of February 2, 1925 was introduced by Congressman Clyde Kelly

[6] 67 Cong. H.R. 11193, Apr. 6, 1922.

[7] *Commercial Aviation—Air Mail Service*, Hearings, House Committee on the Post Office and Post Roads, Apr. 28-29, 1922, Part 3, pp. 110-68.

[8] 67 Cong. H. rep. 1421.

during the first session of the 68th Congress. The bill, which later received approval without change, contained the following provisions:

This Act may be cited as the Air Mail Act.

Sec. 2. When used in this Act the term "air mail" means first-class mail prepaid at the rates of postage herein prescribed.

Sec. 3. The rates of postage on air mail shall not be less than 10 cents for each ounce or fraction thereof.

Sec. 4. The Postmaster General is authorized to contract with any individual, firm, or corporation for the transportation of air mail by aircraft between such points as he may designate at a rate not to exceed four-fifths of the revenues derived from such air mail, and to further contract for the transportation by aircraft of first-class mail other than air mail at a rate not to exceed four-fifths of the revenues derived from such first-class mail.

Sec. 5. The Postmaster General may make such rules, regulations, and orders as may be necessary to carry out the provisions of this Act: *Provided*, That nothing in this Act shall be construed to interfere with the postage charged or to be charged on government operated air mail routes.[9]

The reversion to the fraction-of-postage method of compensation involved a fundamental change from the result of the deliberations of the previous Congress. This change was made in deference to the wishes of Harry S. New,[10] who had become postmaster general after the previous discussion of legislation.

Very little was contributed to the discussion at hearings on the bill in April 1924.[11] The fears of representatives of the aviation industry were soothed by reference to the provision for completing loads with first-class

[9] 68 Cong. H.R. 7064, Feb. 18, 1924. Approved without change as 43 Stat. L., 805.

[10] His letter of Feb. 23, 1924, reprinted in 68 Cong. H. rep. 730; also testimony of Mr. Kelly, *Air Mail—Government Owned and Operated and Contract Service*, Hearings, House Committee on the Post Office and Post Roads, Apr. 29, 1924, p. 9.

[11] The same, pp. 1-32.

mail. Some of the same witnesses appeared and statements of opinion were very similar to those made in 1922. The progress of the Post Office Department in building a lighted airway and successfully conducting night flying was reflected in the witnesses' greater knowledge of what air transport operation actually involved. More emphasis was laid on the need for governmental aids to air navigation as part of a national program for the promotion of aeronautics.

The committee reported the bill to the House in May, stating:

> The objection to all previous proposals for the establishment of contract air mail service has been the demand for a subsidy in the form of a guaranteed load at a fixed price. The present bill provides for the payment of the contractor upon a basis of four-fifths of the revenues derived from the mail carried by air, which is in no way a charge upon the postal revenues.[12]

No action was taken during that session of Congress, but the bill passed both houses and received Presidential approval early in the following year. The length of contract periods was not specified in the legislation. In view of the estimated life of specialized air mail flying equipment and the time necessary to set up an operating organization and to amortize organization expense, a period of from three to five years was regarded as essential. In the exercise of its administrative discretion, the Post Office Department saw fit to make contracts for the full period allowed under existing law, namely, four years.[13]

II. THE AMENDMENT OF 1926

Some time before any service was begun under the provisions of the Air Mail Act, the Post Office Depart-

[12] 68 Cong. H. rep. 730, May 13, 1924.
[13] 17 Stat. L., 315, approved June 8, 1872.

ment discovered the difficulties to be experienced under the fraction-of-postage method of paying contractors. Postage rates of 10 cents an ounce or fraction thereof for each contract route under 1,000 miles in length had been determined upon, plus 5 cents per ounce for each zone of the government operated transcontinental route over which a letter might travel. The practical effect of these complicated postage rates and of the method of paying contractors was vividly illustrated in Postmaster General New's annual report for 1925 by taking the case of an air mail letter moving between Boston and St. Louis.[14] Postage would be 25 cents, representing 10 cents from Boston to New York, 5 cents from New York to Chicago, and 10 cents from Chicago to St. Louis. The contractor operating the Boston-New York route would be entitled to 8 cents, and the contractor operating the Chicago-St. Louis route would be entitled to 6.75 cents.[15] Such amounts were to be determined by the tabulation of postage on all the letters moving over each route. Mention was made of the confusion of the postal employee in case the letter were registered, or carried a special delivery stamp, or weighed more than an ounce. Tabulation was bound to be inaccurate, expensive, and time consuming.

The remedy suggested by Mr. New was somewhat peculiar, in view of the fact that he had refused to approve legislation which would have avoided these difficulties in order to obtain legislation which precluded any possibility of loss to the government. He proposed that Section 4 of the Air Mail Act be amended to provide that: "The Postmaster General may in his discretion

[14] Pp. 32-33.

[15] Under contracts which had been awarded. *Report of the Postmaster General*, 1925, p. 32.

make contracts for the transportation of mail, including equipment, by aircraft at fixed rates per pound, under such regulations as he may prescribe."[16]

This obviously removed all limits to the discretion of the Postmaster General in making payments to contractors. It was expected that existing contracts would be adjusted to the new basis of payment in an equitable manner which would not increase the cost to the government, but competitive bidding for contracts would have been left as the only check which might prevent the Postmaster General from incurring large losses on future contracts.[17]

Members of the House Committee on the Post Office and Post Roads were strongly of the opinion that some check should be placed upon the Postmaster General's discretion. After some discussion, it was concluded that any limit in terms of postage would prove unworkable in practice. A flat limit to the amount which might be paid per pound was then hit upon, with the intention that it be so adjusted that no loss could result to the government. The problem of drafting suitable legislation was complicated by the desire to establish a method for transferring existing contracts to the new basis, and also by Mr. Kelly's insistence that the provision for completing loads with first-class mail be retained in some way, although the Post Office Department at the time did not intend to use this power.[18]

The result of the discussion was a bill which amended

[16] The same, p. 77. The amendment was introduced by Mr. Kelly, 69 Cong. H.R. 5981.

[17] *Pay of Air Mail Contractors*, Hearings, House Committee on the Post Office and Post Roads, Feb. 4, 1926, pp. 8-9.

[18] The same, pp. 6, 7, 8-13. The Post Office Department has never used its power to place ordinary first-class mail in airplanes of the domestic contract air mail service.

the section of the Air Mail Act dealing with contracts. The bill, later approved without change, provided as follows:

That Section 4 of the Air Mail Act of February 2, 1925, is amended to read as follows:

That the Postmaster General is authorized to contract with any individual, firm, or corporation for the transportation of air mail by aircraft between such points as he may designate, and to further contract for the transportation by aircraft of first-class mail other than air mail at fixed rates per pound, including equipment, under such rates, rules, and regulations as he may prescribe, not exceeding $3.00 per pound for air mail for the first 1,000 miles and not to exceed 30 cents per pound additional for each additional 100 miles or fractional part thereof for routes in excess of 1,000 miles in length, and not exceeding 60 cents per pound for first-class mail other than air mail for the first 1,000 miles, and not to exceed 6 cents per pound additional for each additional 100 miles or fractional part thereof for routes in excess of 1,000 miles in length. Existing contracts may be amended by the written consent of the contractor and the Postmaster General to provide for a fixed rate per pound, including equipment, said rate to be determined by multiplying the rate hereinabove provided by a fraction, the numerator of which is the per centum of revenues derived from air mail to which the contractor was previously entitled under the contract, and the denominator of which is 80.[19]

This amendment was reported to the House on May 13, 1926,[20] was promptly passed by both legislative bodies, and received Presidential approval on June 3, 1926.

During debate on the floor of the House, the sponsors of this amendment asserted with emphasis that it provided for a merely administrative change.[21] The object of

[19] 69 Cong. H.R. 11841. Approved without change, 44 Stat. L., 692. The new section replaced Section 4 of the Air Mail Act as given on p. 58.

[20] 69 Cong. H. rep. 1197.

[21] *Cong. Record*, May 19, 1926, Vol. 67, pp. 9696-9702.

the bill, they said, was to simplify the method of computing the payments due contractors. They believed that no loss could result to the government in handling air mail under its terms; and, while they admitted possible loss under the provisions relating to ordinary first-class mail, they pointed out that these provisions had been carried over from the previous Act.

Careful analysis of the amendment does not bear out these contentions. A flat limit of $3.00 per pound for carrying air mail was indeed about four-fifths of the existing postal revenue per contract route from air mail letters, which the committee had been given to understand was $3.80 per pound.[22] However, the amendment completely divorced the amount paid contractors from any dependence on postal revenue. The postage rates then existing had been set by the Postmaster General and were considerably above the minimum provided by the Air Mail Act. The amendment did not raise this minimum, but left the door wide open to a reduction in postage rates with no corresponding reduction in the contractor's rate of payment per pound.

The amendment was also as defective as the original Act in the slight attention given the distance factor in transportation cost. The maximum rate of $3.00 per pound per thousand miles was the equivalent of three mills per pound mile, a maximum in excess of that asked by any witness at the 1922 hearings. At that time they were thinking in terms of a lower scale of postage rates and larger loads; at the high level of postage initiated in 1926, three mills per pound mile was not excessive to the government, and was doubtless well below the

[22] At the hearings previously cited, letters were said to average 38 to the pound at 10 cents postage per letter.

actual cost of transportation in most cases. Unfortunately, the cost to the government could climb above three mills per pound mile in direct proportion as the contract routes fell short of a thousand miles in length, the $3.00 per pound being a flat limit until routes exceeded 1,000 miles in length.

The flat limit to contractors' compensation resulted almost immediately in the creation of a number of short contract routes. Such routes clung to the main transcontinental stem like barnacles and absorbed a disproportionate share of the postal revenue. Colonel Shaughnessy had objected to the fraction-of-postage method of payment in the belief that it would be inconvenient. He had also objected to any flat limit per pound in the belief that it would encourage uneconomic short routes. Both of his objections proved sound in practice.

CHAPTER IV

THE CONTRACT AIR MAIL SERVICE, 1926-30

More than a year elapsed between the approval of the Air Mail Act of February 2, 1925 and the inauguration of service over a domestic contract air mail route. Almost no privately operated air transport lines were in existence when the Act was approved, and time was necessary in which to manufacture suitable aircraft and to assemble operating organizations. Moreover, postal officials hesitated to move under the new Act, fearing to establish routes on which it would be impossible for contractors to survive. The first year and a half of contract service was therefore a period in which government and contract operation overlapped. The tentative policies and procedures then followed were subjected to substantial change during the rapid expansion of the years 1928-30. Separate sections of this chapter will be devoted to the important steps in the development of the contract service.

I. THE PIONEER YEARS, 1926-28

Following the passage of the Air Mail Act, the Post Office Department under date of April 11, 1925 issued regulations which outlined procedure in the establishment of air mail routes.[1] These routes were to be awarded by competitive bidding. Only specially paid air mail was to be carried, and contractors were warned not to ask for more than four-fifths of the postal revenue. The postage

[1] Post Office Department, *Act of Congress Authorizing Contract Air Mail Service and Regulations Relating Thereto*, Apr. 11, 1925.

rate set was 10 cents per ounce per contract route. If no bid was below the legal maximum of four-fifths of postage, either all bids would be rejected, or the successful bidder would be selected in accordance with reliability and financial responsibility, the quality of flying equipment designed or in hand, and the flying experience of the organization. In the absence of any other federal regulatory body, certificates of airworthiness of aircraft and certificates of fitness of pilots were to be obtained from the Post Office Department. The military importance of aviation probably led to the provision that contractors must be American citizens, or if corporations, must prove 75 per cent ownership of their stock by American citizens. Domestic manufacture of the aircraft used was also required.

Competition for the first routes was far from keen. The first advertisement for bids was issued on July 15, 1925 and listed eight routes.[2] Nineteen bids were received. Three of these were so unsatisfactory that they were eliminated, and the two routes affected were not let at that time. Eight other bids were eliminated because irregular, incomplete, or not accompanied by adequate evidence of financial responsibility. It thus happened that four of the six routes contracted for were awarded with no competition. The fifth received two equal bids of the maximum amount, while the sixth was awarded to the high bidder on the ground that he was more able to perform service. Of the six bids accepted, four were for 80 per cent of the revenue, one for 75 per cent, and one for 67.5 per cent.[3]

The first service over a contract route was begun on February 15, 1926. Two routes, Detroit-Cleveland

[2] *Aircraft*, Hearings, President's Aircraft Board, 1925, pp. 293-94.
[3] 72 Cong. S. doc. 70, p. 1251.

and Detroit-Chicago, were simultaneously placed in operation by the Ford Motor Company.[4]

Others followed rapidly during the spring and summer of 1926, and eleven were in existence before the end of government operation in the summer of 1927. All of these routes, with the exception of that from Seattle to Los Angeles, were feeders for the transcontinental route.

After their establishment, the air mail system consisted essentially of the government operated transcontinental route between New York, Chicago, and San Francisco; the privately operated side routes to Boston, Pittsburgh, Detroit, St. Louis, Minneapolis, Kansas City and Dallas, Denver and Pueblo, Los Angeles, and the Pacific Northwest; with the long privately operated route linking the Pacific Coast cities from Los Angeles to Seattle. Three routes which did not touch the system at any point were operated for short periods during 1926 but were discontinued by the end of that year.[5]

Most of the early routes were established without great difficulty and were operated in a satisfactory manner from the very beginning. The existence of the government operated transcontinental route, on which successful methods of operation had been developed over a period of years, and the fact that many of the early contractors possessed long experience in miscellaneous commercial flying, accounted for the success.

Economic analysis of contract operation in 1926 and

[4] Aeronautical Chamber of Commerce, *Aircraft Year Book*, 1926, pp. 29-33. As it happened, these routes were not among the first eight advertised. The Ford Motor Company was first in the field because it had previously been operating a private air express service between its plants over the same routes.

[5] Philadelphia-Washington, Philadelphia-Norfolk, and Miami-Atlanta.

1927 may proceed from two points of view, that of the government and that of the contractors. From the point of view of both, the period was divided into three subperiods by two significant events. On July 1, 1926 the change in method of compensation of contractors pursuant to the first amendment of the Air Mail Act was completed. On February 1, 1927 new air mail postage rates were placed in effect.

The contract air mail service was operated during the short period prior to July 1, 1926 in a manner which definitely precluded any possibility of loss to the government. The first routes were awarded under the original Air Mail Act of February 2, 1925, and several of them were placed in operation before the approval of the first amendment on June 3, 1926. The compensation of the contractors in possession of these routes was therefore determined for a time in accordance with the rigid terms of the original Act. An actual count was made of the postage on all mail moving over these routes.[6] The contractors were paid in accordance with their bids and in no case received more than 80 per cent of the postage applicable to their respective routes.

After the approval of the amending Act on June 3, 1926, steps were immediately taken to place the compensation of the contractors on a poundage basis. Contracts were amended by agreement between the Post Office Department and the contractors,[7] compensation at the rate of 80 per cent of the postage being changed to $3.00 per pound. Lower bids were transposed in the same way. The new rates of compensation were placed

[6] The two routes operated by the Ford Motor Company were exceptions, the rate of compensation on these two routes being 6.75 cents per ounce. 72 Cong. S. doc. 70, pp. 130, 146.

[7] The amending agreements may be found in 72 Cong. S. doc. 70.

in effect on or before July 1, 1926 and ended the cost and delay of the postage count.

The new rates slightly increased the compensation of the contractors,[8] but in all probability the service continued to operate without loss to the department. This was true of the individual routes as well as of the service as a whole. The postage rates on air mail were unchanged, and no matter how short the route, 10 cents an ounce per route continued to be charged. Since letter mail averages less than half an ounce per piece, the postal revenue per route should have been considerably in excess of $3.00 per pound, unless a large volume of package mail was carried. Unfortunately, the rates not only were arbitrary in that they bore little relation to the distance traveled, but also were complicated beyond the comprehension of the average user.

The postage rates for air mail were revised on February 1, 1927. The complex route and zone system was swept away completely and replaced by a simple blanket rate of 10 cents per half ounce, between any two points in the United States. The adoption of a blanket rate for a service so marked by high transportation cost may have been premature at this time.[9] However, the new rate was an improvement in that it was simple and easily remembered by users.

Following the adoption of the new postage rate, the service was operated at a definite loss to the government. Although the charge had been increased on some letters,

[8] *Report of the Postmaster General*, 1926, p. 28.

[9] An intermediate stage had been suggested by which the United States would have been divided into two zones at Omaha, thus providing a double zone rate on transcontinental mail only. Harry Kirkwood, "Reduce Our Air Mail Rates," *Aero Digest*, August 1926, Vol. 9, pp. 104, 156.

it had been substantially reduced on the typical letter weighing less than half and ounce and moving beyond one contract route or one zone of the transcontinental route. A cost study made in October 1927 indicated that the loss on contract air mail service as a whole amounted to approximately a quarter of the expenditures.[10] As was noted in Chapter II, prior to this time the transcontinental route had been turned over to contractors at rates conducive to operation without loss to the government. Most of the loss shown by the cost study must therefore be attributed to the early contract routes which form the subject of this section. It should be remembered, however, that in the absence of the mail provided by these feeder routes, the transcontinental route would have been awarded at rates much less favorable to the government.

The routes operated at the greatest proportion of loss to the government are revealed by a study of the table on page 71. For the purpose of determining relative degrees of loss, it is necessary to have a common unit of comparison which takes account of both the length of the route and the contractor's compensation per pound of mail carried. The computations of contractors' ton mile compensation given in the table furnish such a common denominator. The effect of a flat rate of compensation per pound on ton mile cost to the government suggested in Chapter III is here shown. Most of the early routes were obtained at rates at or near $3.00 per pound; the resultant range of ton mile cost was from $5.36 to $49.59, and was determined almost entirely by the length of the individual routes. The absurdly high cost of $49.59 was

[10] Air mail revenue less the estimated cost of handling air mail amounted to 76.3 per cent of the payments due carriers during a sample week. *Post Office Appropriation Bill*, 1929, Hearings, House Committee on Appropriations, Jan. 11, 1928, pp. 301-02.

the result of awarding the extremely short Cleveland-Pittsburgh route to a contractor who bid $3.00 per pound —in this case the equivalent of 2.5 cents for carrying one pound one mile. The ton mile costs shown are the lowest possible under the contracts, but probably are fairly accurate except in the case of three routes: Seattle-Los Angeles, Chicago-Dallas, and Cheyenne-Pueblo. In each of these cases large cities are found in the middle of the routes. Mail originating or terminating at these cities traversed only a part of the route, although contractors were paid the full contract rates per pound. Therefore the ton mile operating cost to the government on these routes was considerably higher than appears from the table.

FINANCIAL ASPECTS OF EARLY CONTRACT AIR MAIL ROUTES, 1926–27

Route	Cost to Government[a] (Per pound)	Route Mileage[b]	Cost to Government	
			Ton Mile[c]	Airplane Mile[d] (1927 average)
Seattle-Los Angeles	$3.09[e]	1,152	$5.36[f]	$0.36
Chicago-Dallas	3.00	995	6.03[f]	0.49
Detroit-Chicago	1.08	252	8.57	0.09
Salt Lake City-Los Angeles	3.00	633	9.48	1.45
Salt Lake City-Pasco	3.00	535	11.21	0.56
Chicago-Minneapolis	2.75	399	13.78	0.42
Detroit-Cleveland	1.08	155	13.93	0.04
Chicago-St. Louis	2.53	268	18.88	0.64
Boston-New York	3.00	219	27.40	0.62
Cheyenne-Pueblo	3.00[g]	200	30.00[f]	0.74
Cleveland-Pittsburgh	3.00	121	49.59	0.99

[a] *Report of the Postmaster General*, 1928, p. 131.
[b] *Report of the Director of Aeronautics*, 1927, p. 27.
[c] Computed on the assumption that all mail moved the entire length of the route.
[d] Aeronautical Chamber of Commerce, *Aircraft Year Book*, 1928, p. 450.
[e] $2.81 per pound for mail moving less than 1,000 miles over the route.
[f] Compensation was greatly in excess of that shown because much of the mail moved over only a part of the route. See accompanying text.
[g] $0.83 per pound after Dec. 10, 1927.

The ton mile costs shown should be compared with the average ton mile revenue to the government from air mail during this period, which can be estimated at $4.00, as noted in Chapter II. It appears that two of the air mail routes shown in the table were less than 10 per cent self-supporting in 1927; two others may have been about half self-supporting; the rest were scattered between.[11]

Economic analysis of the air mail service from the standpoint of the contractors indicates that their condition was not completely satisfactory. Despite the high rates of compensation paid and the reduction of air mail postage on February 1, 1927, most of the contractors continued to operate at a loss, as they had from the beginning. Since contracts were awarded for four years, contractors might reasonably have entered the business in the expectation of operating at a loss for a time and regaining their losses as the volume of traffic was built up. But by the end of 1927 many contractors were wondering whether they would be in business long enough to regain their losses.

Some idea of the state of affairs may be gained by a study of the gross revenue per airplane mile received by the various contractors. The statistics were first available for individual routes in 1927, and are shown for that

[11] One exception should be noted. The Pacific Coast route between Seattle, Portland, San Francisco, and Los Angeles was a self-contained operation which contributed almost no mail to the transcontinental route. The average distance traveled by mail moving over the route was therefore unusually short, hence ton mile revenue to the government was unusually high, and the average for the country at large should not be applied to this route. In other words, mail moving over this route carried postage of at least $3.20 per pound. The contractor received only $3.09, and that only if the mail moved the entire length of the route. The route was probably unique in that it was the only self-supporting air mail route in the country between Feb. 1, 1927 and the beginning of private operation of the transcontinental route.

year in the table. The two routes held by the Ford Motor Company, Detroit-Chicago and Detroit-Cleveland, may properly be omitted from consideration, since mail carrying was never their primary function and they were therefore not scheduled in such a way as to interlock with the system.[12] Other routes varied in gross return to contractors from 36 cents to $1.45 a mile during the calendar year 1927. The cost of operation of the routes is available in only one case, so far as the writer has discovered. National Air Transport reported a cost of operation of 78 cents a mile in 1926 and of 76 cents a mile in 1927.[13] It operated over a long route marked by good flying conditions and was conservatively managed by persons of experience. Other operators may have achieved lower costs through using smaller aircraft and paying lower wages. It appears, however, that during 1926 and 1927 most of the contractors were operating at a considerable loss. This conclusion is supported by contemporary evidence of a non-statistical character.[14] Probably the two contractors with the highest gross return realized a profit in 1927.

Nevertheless, had basic conditions remained unchanged, many of the original group of contractors might have ended their contract periods with a profit for the entire period. Operating costs were declining and the volume of mail was growing steadily, particularly after the change in postage rates on February 1, 1927.

To sum up the state of affairs in the contract service

[12] Aeronautical Chamber of Commerce, *Aircraft Year Book*, 1927, pp. 38, 317.

[13] On the Chicago-Dallas route in 1926 and 1927, and on the New York-Chicago during four months of 1927. *Amending Air Mail Act*, Hearing, House Committee on Post Office and Post Roads, Feb. 19, 1930, p. 49.

[14] Aeronautical Chamber of Commerce, *Aircraft Year Book*, 1927, p. 21.

during the overlapping period of government and contract operation: The contract service was started by contractors who knowingly took the risk of the traffic under terms which precluded any possibility of loss to the government. The conditions under which the contracts were made were altered to the benefit of the contractors by a reduction in postage rates on February 1, 1927, following which the service operated at a loss to the government. The loss was substantial, but may not have been excessive for a new postal service. Many of the first contract routes were well justified, but several were very uneconomic, because of their short length and high cost. Most of the contractors at first operated at a loss, but by the end of 1927 it was apparent that the service could be continued indefinitely on the basis of existing contract rates with the existing level of postage rates.

II. AMENDMENT OF THE AIR MAIL ACT, 1928

Rapid expansion of air mail service and rapid change in policies towards the service and the contractors occurred during the period from 1928 to 1930. Legislation early in 1928 provided for a lower scale of air mail postage rates and a revision of the terms of air mail contracts. The rates were then reduced, but difficulties were experienced in the revision of contracts.

The legislative basis of change in air mail policies was laid by a second amendment of the Air Mail Act on May 17, 1928. The legislative history of this amendment began with the introduction of a bill by Mr. Clyde Kelly on January 4, 1928.[16]

The bill contained two important provisions. The first amended the Air Mail Act by changing the authorized

[16] 70 Cong. H.R. 8337.

minimum rate of 10 cents per ounce or fraction thereof to 5 cents. The postage rates actually in effect were 10 cents per half ounce. The adoption of a postage rate of 10 cents per ounce would have taken advantage of the existing legal minimum, but would not have reduced the postage rate on ordinary letters weighing less than half an ounce, for which new legislation was necessary.

The postage provisions of the bill were included because the volume of air mail was proving so small under existing postage rates. The volume of mail had been growing steadily from the beginning of contract operation, but the average load was far below the capacity of the smallest airplanes in service. The load had averaged 29 pounds per trip during the short period of contract operation prior to July 1, 1926. It averaged 65 pounds during the second half of 1926, and 86 pounds during the first half of 1927. After July 1, 1927 the transfer of the transcontinental route to contractors inflated the average. Even so, the average load was but 191 pounds during the second half of 1927, just before the introduction of the Kelly bill.[16]

The compensation of contractors under existing contracts was directly dependent upon volume, and was still unsatisfactory, although steadily growing. The pay per airplane mile flown with mail had averaged 22.6 cents during the initial period prior to July 1, 1926. It climbed to 42.9 cents during the second half of 1926, and to 54.6 cents during the first half of 1927. The transfer of the transcontinental route inflated this average also, but it amounted to only 73.6 cents during the second half of

[16] Computed from *Report of the Postmaster General*, 1930, pp. 138-40. The weight of mail carried during April, May, and June of 1926 was estimated. A correction was made for trips scheduled but not flown.

1927.[17] Income of 73.6 cents per mile was probably well below the average cost of operation at the time, as noted in Section I of this chapter.

The second important provision of the bill was written to anticipate the expiration of existing contracts. A new section was to be added to the Air Mail Act to provide that contractors who had operated their routes in a satisfactory manner for two years or more might surrender their contracts in exchange for air mail route certificates. The term "route certificate" was not defined in the bill, but something in the nature of a franchise was evidently contemplated. Air mail carriers in possession of route certificates were to be allowed to carry mail over their routes indefinitely at rates of compensation determined periodically by negotiation with the Postmaster General. Compensation under route certificates was in no case to exceed compensation under the contracts replaced by certificates. Certificate holders were to comply with regulations of the Postmaster General "for meeting the needs of the Postal Service and adjusting air mail operation to the advances in the art of flying." Certificates could be cancelled for failure to comply with such regulations.

The certificate provisions of the 1928 amendment were partly intended to stabilize the industry by giving the contractors a more assured future than was possible under the four-year contract system prevailing.[18] Several operators had incurred heavy development costs under contracts which were to expire in 1930, and some of them had little prospect of recovering these losses before that time. Some contractors had invested in specialized equipment which would be of little value if they lost their

[17] Computed from the same.

[18] The maximum period allowed by law. U. S. Code, Title 39, Sec. 436.

routes at the end of the contract period. With their future uncertain, they had no incentive to purchase new equipment to improve their service.

The certificate provisions were also intended to provide a method for reducing the compensation of the carriers after postage rates were reduced. Mr. Kelly stated that his bill had two closely related purposes.[19] One was to permit the reduction of the air mail postage rate in order to obtain a greater volume of mail; the other was to permit the Postmaster General to lower the compensation of the air mail carriers. He expected that the carriers would be in a position to accept less compensation after the reduction in postage rates, because of the greater volume; and he further expected that they would willingly accept a reduction as the price of the exchange of their contracts for route certificates and the consequent extension of their periods of operation.

The proposed legislation was much desired by the air mail contractors. At hearings on the Kelly bill the principal witness was Colonel Paul Henderson, who had left the Post Office Department to join one of the larger contractors. He testified as follows:

> Gentlemen, the whole problem of those of us in this business is brought about by the fact that up until now there has not been traffic enough to pay expenses at the rates we are collecting. We collect varying rates. My company collects $3.00 a pound from Dallas to Chicago and $1.24 on the line from New York to Chicago. We have been in actual operation on the Dallas line since May 12 a year ago. Our losses have varied from a thousand dollars a day to now about $500 a day.
>
> We have been running the New York-Chicago line, two round trips a day, since September 1 of this year and our losses on that line have averaged about $600 a day. We have been in

[19] *Cong. Record*, Jan. 6, 1928, Vol. 69, p. 1111.

the business a little over two years and have been losing from $500 to $1,200 a day. We have invested about 1.5 million dollars in the business and stand ready to invest reasonable sums in addition. As I say, our problem is there is not business enough.

There are two or three fundamentals about flying that are important. The cost of flying, up to a certain limit, doesn't change with volume. We are running planes from Dallas to Chicago capable of carrying a thousand pounds. We have never had more than 200 to carry in them.

We think a reduction in postage rate will increase the volume of mail to be carried and are willing to reduce the price to the government as the volumes which come to us are increased. If we had a thousand pounds between Chicago and Dallas we wouldn't want $3.00. We would want something less than $1.25. If we had 4,000 pounds a day from Chicago to New York, our $1.24, instead of being a losing price would be a handsome price, and we would be delighted to make a reduction. . . .

I am firmly convinced that if the rate were 5 cents we would do five times as much business. The rates being paid to the operators could be reduced as much as one-third of what they are being paid now.[20]

Speaking with reference to the provision for route certificates, Colonel Henderson said:

If something like this does not happen, I don't know just what the next step would be. I don't know, for instance, how I could justify myself before my board of directors in asking for additional sums of money to invest in plant and equipment in a business when we don't know whether we are going to be in the business more than a few months. In two years we will be at the end of our Dallas contract. We have operated for almost two years. We have lost perhaps $300,000 on it. We know it is going to get better, but we would like to make our service better over that line. I would like to buy some new airplanes as soon as I can, but if we are going to be out of the business at the end of the next two years I don't suppose I could justify the purchase

[20] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Jan. 12, 1928, pp. 29-30.

of perhaps half a million dollars more airplanes to use on that line.[21]

The familiar objection to short-term franchises of all descriptions in industries marked by investment in specialized capital will be recognized by students of public utility economics. In effect, the Kelly bill proposed to substitute indeterminate permits for fixed-term franchises. No provision was made for terminating the route certificates for any reason other than failure to comply with regulations of the Postmaster General.

The indeterminate duration of the proposed route certificates gave rise to the only substantial opposition to the bill as originally introduced. Congressman Ramseyer objected strenuously to the granting of a right to carry mail in perpetuity, notwithstanding the large amount of administrative discretion to be lodged in the Postmaster General. The railroad analogy was appealed to by the Second Assistant Postmaster General, whereupon it was brought out that the rate of compensation of the railroads was set by the Interstate Commerce Commission rather than by the Postmaster General. Colonel Henderson indicated a belief that air transport would be under the commission in any event in a few years, and saw no reason for objecting to a time limit on the duration of route certificates.[22]

The bill was rewritten to limit the duration of route certificates to ten years, measured from the beginning of service under contract. As reported and finally passed on May 17, 1928, it provided as follows:[23]

[21] The same, p. 33.

[22] The same, pp. 20-21, 33.

[23] 45 Stat. L., 594. The text of the original Air Mail Act is given at p. 58 of this book, and the text of the previous amending Act at p. 62.

That Section 3 of the Air Mail Act of February 2, 1925 (United States Code, Title 39, section 463), as amended by the Act of June 3, 1926, is hereby amended to read as follows:

Sec. 3. That the rates of postage on air mail shall not be less than five cents for each ounce or fraction thereof.

Sec. 2. That after Section 5 of said Act (United States Code, Title 39, section 465) a new section shall be added as follows:

Sec. 6. That the Postmaster General may by negotiation with an air mail contractor who has satisfactorily operated under the authority of this Act for a period of two years or more, arrange, with the consent of the surety for the contractor and the continuation of the obligation of the surety during the existence or life of the certificate provided for hereinafter, for the surrender of the contract and the substitution therefor of an air mail route certificate, which shall be issued by the Postmaster General in the name of such air mail contractor, and which shall provide that the holder shall have the right of carriage of air mail over the route set out in the certificate so long as he complies with such rules, regulations, and orders as shall from time to time be issued by the Postmaster General for meeting the needs of the postal service and adjusting air mail operations to the advances in the art of flying: *Provided,* That such certificate shall be for a period not exceeding ten years from the beginning of carrying mail under the contract. Said certificate may be cancelled at any time for willful neglect on the part of the holder to carry out such rules, regulations, or orders; notice of such intended cancellation to be given in writing by the Postmaster General and 60 days provided to the holder in which to answer such written notice of the Postmaster General. The rate of compensation to the holder of such an air mail route certificate shall be determined by periodical negotiation between the certificate holder and the Postmaster General, but shall never exceed the rate of compensation provided for in the original contract of the air mail route certificate holder.

The amending Act permitted the Post Office Department to make two major changes. One possible change was the destruction of the existing relationship between air mail postage rates and the compensation of the carriers. The postage rate on air mail letters could be re-

duced by half, without any reduction in the compensation of contractors. Although Congress undoubtedly expected an immediate adjustment in the poundage rates paid contractors, the Act did not compel the Postmaster General to make any change in the poundage rates paid. In the absence of a reduction in contractor's pay, a reduction in postage rates was certain to cause heavy loss on air mail service.

The route certificate provisions made possible another major change. They permitted a deliberate breaking away from reliance upon competitive bidding to assure service at fair cost to the government. The change was made with little thought of the consequences; its wisdom was far from clear then and is not clear now.

For better or for worse, Congress decided against a policy of competitive bidding for routes once awarded. The decision gave the air mail carriers an assured future possessed by no other group in aviation. The more forward-looking and public-spirited of the mail carriers used their opportunity to carry on important technical development work. They were also led to make substantial investments in airports and other fixed property along their routes. Some loss in progress towards a lower cost of operation may have been the price of the stability acquired under the new policy. The charge was made repeatedly in recent years that air mail carriers as a class were dilatory in their efforts to reduce the cost of their service to the government. Some attention will be given to this question in a later chapter.

III. REDUCTION IN AIR MAIL POSTAGE RATES AND THE CONSEQUENCES

Under the authority of the amendment to the Air Mail Act discussed in the last section, air mail postage rates were reduced on August 1, 1928 to 5 cents for the

first ounce and 10 cents for each additional ounce. The rates then established remained in effect until July 6, 1932. According to the new schedule, ordinary air mail letters weighing less than half an ounce carried a rate of 5 cents instead of 10; air mail letters weighing between half an ounce and one ounce carried a rate of 5 cents instead of 20; and package mail carried a rate of $1.55 for the first pound and $1.60 for each additional pound instead of $3.20 per pound.

The new rates were peculiar in that they charged less for the first ounce than for additional ounces, contrary to most rate-making practices. This arrangement was adopted in the expectation that the 5-cent rate would apply principally to letters, which would average less than half an ounce and yield nearly $2.00 per pound. Package mail would yield something less than $1.60 per pound, depending on the average weight per piece and the consequent importance of the low rate for the first ounce. For example, packages weighing exactly an ounce would yield only 80 cents per pound, but packages weighing a pound would yield $1.55 per pound.

The effect of the rate reduction was an immediate increase in traffic of about 95 per cent. The weight of air mail carried amounted to 214,575 pounds in July 1928, and to 419,049 the following month.[24] No immediate adjustment was made in the rate of compensation of contractors, who thus found their income nearly doubled through the action of the Postmaster General. For their services during July 1928 contractors were paid $445,238.41, while for August 1928 they received $820,658.36. Their expenses were increased hardly at all, since almost all had capacity to spare even after the

[24] *Report of the Postmaster General*, 1929, p. 126.

increase in volume. It may be concluded that few groups of business men have seen their economic position changed so suddenly and so greatly by the decision of a single administrative official.

The contractors' gain was the Treasury's loss. For the first time the revenue from air mail was far below the expenditure on account of contract air mail service. The new rate was in effect for eleven months of the fiscal year 1929; during that fiscal year postal revenue from air mail was estimated at $4,250,546.90, while payments to carriers totaled $11,169,015.13. The direct loss, aside from handling expense on the ground, was thus $6,918,468.23, and the service was less than 40 per cent self-supporting.[25]

Several air mail routes began to bring their holders extremely large profits after the postage rate reduction. Operating costs plus a fair return to capital may well have varied from 50 cents to a dollar per airplane mile during 1929, judging from a variety of evidence—some of which is little better than hearsay in character.[26] If a dollar a mile is arbitrarily adopted as the maximum reasonable compensation for carrying air mail during the fiscal year 1929, the income of contractors in excess of this amount can be readily computed. The results are

[25] Post Office Department, *Cost Ascertainment Report*, 1929, p. 9.

[26] It appears that an income of a dollar per airplane mile would have given National Air Transport a profit of about 10 per cent on invested capital during the calendar year 1929. The company reported a cost per mile flown with mail of 77.92 cents in 1926, 76.26 in 1927, 70.22 in 1928, and 81.45 in 1929. (*Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, p. 49.) The following ratios of expense to income would have given it earnings of 10 per cent: 81.1 per cent in 1926, 85.7 per cent in 1927, 82.1 per cent in 1928, and 82.1 per cent in 1929. (Computed from *Poor's Industrials*, 1931, p. 2598.) Income of $1.00 per mile would thus have given earnings slightly above 10 per cent in 1929, but 90 cents would have been more than ample in 1928.

shown in the accompanying table. Payments well over a dollar a mile were made for service on seven routes and the excess above a dollar amounted to $3,029,684.65 of the $7,861,688.65 paid for service on these routes.

GOVERNMENT CONTRACT PAYMENTS IN EXCESS OF ONE DOLLAR PER AIRPLANE MILE, FISCAL YEAR 1929[a]

Route	Contractor	Payment Per Mile	Total Payments	Excess Payments
Boston-New York	Colonial Air Transport...	$2.60	$ 275,136.56	$ 169,335.56
Salt Lake City-Los Angeles	Western Air Express.....	3.20	1,784,407.76	1,226,420.76
Salt Lake City-Pasco	Walter T. Varney.....	1.56	575,747.84	206,731.84
Cleveland-Pittsburgh	Clifford Ball...	2.79	291,484.80	186,995.80
New York-Chicago	National Air Transport...	1.06	1,211,340.35	63,508.35
Chicago-San Francisco	Boeing Air Transport...	1.45	2,997,885.50	927,422.50
New York-Atlanta	Pitcairn Aviation, Inc.....	1.52	725,685.84	249,269.84
Total.....			$7,861,688.65	$3,029,684.65

[a] Computed from *Report of the Postmaster General*, 1929, p. 125.

The postage rate reduction was a very great temptation to malpractice on the part of contractors. Under the new rates air mail postage was in no case expected to exceed $2.00 per pound, assuming that pieces mailed would not exceed 40 to the pound. Service on 12 of the 27 routes in existence during the fiscal year 1929 was paid for at rates in excess of $2.00 per pound, and on six routes at the maximum rate of $3.00 per pound.[27] Under the circumstances, if the contractor for one of these routes found that a crankshaft or other repair part was needed at the far end of his route, the obvious thing to do was to mail it. Thereupon the contractor paid post-

[27] *Report of the Postmaster General*, 1929, p. 125.

age at the rate of $1.55-$1.60 per pound, and was paid for carrying his own crankshaft at the rate of $3.00 per pound. Furthermore, if upon arrival the crankshaft was really not needed, it could be returned the same way. This delightful process could be continued indefinitely, and was perfectly legal. Publicity departments sending out items weighing nearly an ounce, some of which came to the writer by air mail, paid postage rates of about a dollar a pound. Probably for the first time in history such departments could show direct profit. Without neglecting such picayunish details, some contractors sought bigger game. The Post Office Department found it necessary to investigate rebating, which was later found to have occurred in the case mentioned in the following interchange:

Mr. Brown. . . . Now, not long ago two tons of lithographs were sent from Niagara Falls to California by air mail.

Mr. Hardy. At the air postage rate?

Mr. Brown. Yes. The postage on it was about $6,000 and we paid the contractor $25,000 for carrying it.[28]

No doubt cases of this sort were rare, but the evil of unethically inflated volume was evidently extensive enough by 1930 to give the Postmaster General some reason to expect a decline in volume after a change in the method of compensating contractors.[29]

[28] *Post Office Appropriation Bill*, 1931, Hearings, House Committee on Appropriations, Dec. 9, 1929, p. 243; *Second Deficiency Appropriation Bill*, 1930, Hearings, House Committee on Appropriations, May 26, 1930, p. 583. The shipment was referred to as consigned to Los Angeles. Postage would have been paid at the rate of $1.60 per pound. The rates of compensation of contractors holding routes over which the shipment must have moved were as follows: Colonial Western Airways, Buffalo-Cleveland, $1.11 per pound; National Air Transport, Cleveland-Chicago, $1.24; Boeing Air Transport, Chicago-Salt Lake City, $2.10; Western Air Express, Salt Lake City-Los Angeles, $3.00. *Report of the Postmaster General*, 1929, p. 125.

[29] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, p. 17.

The amendment to the Air Mail Act under which the postage rate was reduced also provided a mechanism for reducing payments to contractors. Reduction of payments to contractors was very intimately connected with reduction of postage in Congressman Kelly's first speech on the bill,[80] and in fact the two adjustments seem to have been closely connected in the minds of all except the Postmaster General.

The procedure contemplated for reducing contractors' compensation was linked with the exchange of contracts for route certificates. It will be recalled that under the terms of the amending Act,[81] contracts could be surrendered in exchange for route certificates after two years of satisfactory operation. Several of the existing contractors had begun operation during the spring and summer of 1926, and negotiations looking towards the exchange of contracts for certificates could have been commenced immediately after the approval of the Act on May 17, 1928. Four of the six three-dollar routes could have been placed upon a certificate basis by July 1, 1928. The compensation of contractors could then have been reduced as the volume of mail warranted, with due regard for the equities of the situation and the quite human desire of the contractors for a chance to recoup early losses.

Postmaster General New completely failed to take advantage of this or any other course of action to protect the government from excessive loss.[82] He decided to re-

[80] *Cong. Record*, Jan. 6, 1928, Vol. 69, p. 1111.

[81] P. 80.

[82] He could, for example, have required all the contractors to agree to a 25 per cent reduction in their rates as a condition to a postage rate reduction of 50 per cent. It would have been a change in the terms of the contracts, but so in effect was the postage rate change. The matter would have been a suitable one for bargaining, and contractors would still have profited greatly from the postage rate reduction.

duce the postage rates on August 1, 1928, and to wait for six months to discover the effect upon the volume of mail before undertaking any negotiations with contractors.[33] The year was that of a Presidential election and the interval of six months carried Mr. New past the elections. By that time he was within sight of the end of his term of office, and postponed action. The problem of narrowing the gap between air mail service cost and revenue was therefore bequeathed to the incoming Postmaster General, Walter F. Brown.

The contractors were called in for the first conference on rates of compensation in May 1929. This conference seems to have been designed merely to clear the ground for discussion. The principal result was a decision to send out a questionnaire to all contractors in order to obtain comprehensive information on cost of operation.[34] The preparation of this questionnaire brought out the need for a uniform system of accounts for carriers by air. Such a system was devised by Post Office Department accountants along the lines of the system of accounts prescribed for railroad common carriers by the Interstate Commerce Commission. The new system was then sent out with the cost questionnaires for use in preparing the returns.[35] Compilation of the results of the questionnaires caused further delay, and the negotiations with the contractors were not resumed until September 30, 1929.

Unexpected difficulties arose during the course of the

[33] Colonel Paul Henderson, then general manager of National Air Transport, informed the writer that he went to Mr. New immediately after the approval of the Act of May 17, 1928, and asked him what he proposed to do and what the contractors were to expect. The above was the answer that Colonel Henderson reports.

[34] *United States Daily*, May 27, 28, 29, 1929, Vol. 4, pp. 740, 745, 758.

[35] *United States Daily*, June 11, 22, July 23, 1929, Vol. 4, pp. 863, 969, 1215.

conferences in September and October 1929. These difficulties led directly to the third amendment of the Air Mail Act, and will therefore be discussed in the next section.

IV. AMENDMENT OF THE AIR MAIL ACT, 1930

The Air Mail Act received its third and most drastic revision by the Act of April 29, 1930, commonly known as the Watres Act. This Act provided the legislative basis for important changes in the nature of the air mail service. Under its provisions, air mail payments have been used to subsidize passenger service on a lavish scale and the air mail carriers have been subjected to a great increase in the regulatory activities of the Post Office Department. The reasons for the changes in policy embodied in the 1930 Act are therefore worthy of consideration in some detail.

The reasons for the Watres Act were none too plain at the time it was passed, and an attempt to disentangle the real reasons from superficial propaganda is not easy even now. The ostensible reason for legislation was the breakdown of negotiations for the exchange of air mail contracts for route certificates in the fall of 1929.

The negotiations with contractors started smoothly enough on September 30, 1929. As noted in the last section, the Post Office Department had been engaged in an extensive study of the financial condition of the contractors for some months. The results of that study were not wholly satisfactory, owing to the primitive nature of the accounting systems used by some of the smaller contractors. Enough information was available, however, to permit the issuance of route certificates and a rough adjustment of rates on the routes up for discussion. A settlement was imperative for the five oldest routes, since

contracts for these routes were to expire on October 7, 1929.

The original intention of the Post Office Department was to issue route certificates at once for contracts near expiration. Compensation was to be continued on the poundage basis, but pound rates were to be adjusted in an attempt to give certificate holders a fair rate of return and nothing more. The Postmaster General was said to have told the contractors that, unlike shipping companies, they were not entitled to a subsidy because they had no foreign competition. Apparently he also took the position that losses arising solely from passenger traffic should not be absorbed in mail pay.[36] The pound rates proposed to the contractors were not announced either then or since, and it is therefore impossible to judge how rigorously the proposed payments were confined to the cost of mail transportation.[37]

Instead of issuing certificates at once as planned, the whole matter of contractors' pay was reopened and negotiations dragged on for weeks. Contracts due to expire on October 7 were at first extended for a month,[38] and then for "a period not to exceed six months."[39] The conferences among contractors and between the contractors and postal officials were private, and almost no informa-

[36] "Air Mail Conferences Are Held," *Airway Age*, November 1929, Vol. 10, pp. 1789-90.

[37] Colonel Paul Henderson has informed the writer that his company was offered a rate of $2.50 per pound on the Chicago-Dallas route. They were prepared to accept this offer, although it shows no evidence of undue generosity in view of previous experience with that route. Western Air Express was offered 87 cents a pound and refused the offer, according to *Poor's Cumulative*, 1930, Vol. 2, p. 779. On the basis of 1929 experience, 87 cents per pound would have given Western Air Express more per mile than the $2.50 offered National Air Transport.

[38] *United States Daily*, Oct. 12, 1929, Vol. 4, p. 1929.

[39] 72 Cong. S. doc. 70, p. 25.

tion was given to the press at the time. It is therefore necessary to reconstruct the situation in the light of the underlying circumstances, the guarded utterances at the time, explanatory statements at hearings on legislation, and information obtained from participants who are now willing to talk but do not desire to be quoted.

In the first place, it is obvious that as long as attention was confined to the five oldest air mail routes, and only to the air mail service over these routes, a settlement was readily possible. The contractors holding those routes were all making a profit, or at least not losing, on the air mail part of their business on those particular routes. All could have received certificates under existing law, and could have continued to operate indefinitely with no increase in their rates of compensation and in most cases with substantial reductions.[40] Unfortunately for the success of the negotiations, most of the contractors with profitable air mail routes were also carrying on unprofitable enterprises. They were not slow to ask the government to "stabilize aviation" by assuming the burden of these losses. Such unprofitable enterprises were of two descriptions.

On the one hand, some contractors were carrying on extensive passenger transport services at a loss. Western Air Express, whose Salt Lake City-Los Angeles route was extremely profitable after the postage rate reduction to 5 cents, was engaged in passenger transportation between Los Angeles and San Francisco and had close affiliations with passenger airlines between San Francisco and Seattle, Los Angeles and El Paso, and elsewhere,

[40] An exception possibly should be made for the Chicago-St. Louis route, much of whose traffic had been diverted to the St. Louis-Omaha route in May 1929. *Report of the Postmaster General*, 1929, p. 125.

all operating at a loss.[41] Colonial Air Transport, whose Boston-New York route was very profitable at the time, was also operating passenger service over the same route, undoubtedly at a substantial loss. Other contractors were either carrying on passenger services themselves or were more or less closely affiliated with passenger transport lines, all operating at a loss.

On the other hand, some contractors were in possession of both profitable and unprofitable air mail routes. The Robertson Aircraft Corporation, whose route between Chicago and St. Louis showed gross income of $1.00 per mile during the fiscal year 1929, had also obtained the route between St. Louis and Omaha, at a bid of $0.785 per pound. This route showed a gross return of $0.14 per mile during the fiscal year 1929.[42] Colonial Air Transport was in a similar position with respect to an affiliate, Colonial Western Airways, which had obtained the Albany-Cleveland route at a bid of $1.11 per pound and which was receiving gross income from this route at the rate of $0.41 per mile. Moreover, after obtaining the routes in question, Colonial and Robertson had come under the control of the newly organized Aviation Corporation of Delaware. This corporation gathered together eleven domestic air mail routes during 1929. Not one of these routes appears to have been profitable at the time of purchase except Boston-New York, the contract for which was soon to expire, and Chicago-St. Louis, which became unprofitable about the time of

[41] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, p. 49.

[42] Based on two months' operation only; the return increased to $0.23 per mile during the following year. Computed from *Report of the Postmaster General*, 1929, p. 125; 1930, p. 137.

purchase through diversion of traffic to another route.[43]

Extensive and unprofitable passenger transport lines were also purchased by Aviation Corporation in 1929, later to be abandoned. It may be assumed that Aviation Corporation was ably represented at the negotiations in the fall of 1929, and that it urged with some vigor the desirability of considering the losses on its unprofitable air mail routes and passenger services in setting the rates of compensation for its previously profitable air mail services on the Boston-New York and Chicago-St. Louis routes.

Any attempt to arrive at an equitable rate settlement on the basis of considerations alien to the particular services under discussion presented obvious difficulties. Under such a settlement, contractors wise enough to avoid unprofitable undertakings would have been penalized for their discretion by receiving lower rates than other contractors giving equivalent service.

At this point the President seems to have entered the controversy. He was definitely of the opinion that some scientific rate formula should be devised which could be applied to all routes, and which would give equitable results.[44] The contractors, although some of them thought such a formula impossible of attainment, made a real effort to devise a formula during conferences among themselves which lasted about two weeks.[45]

[43] Aviation Corporation was described in 1930 by its attorney, Mrs. Mabel Walker Willebrandt, as a "holding company organized in an effort to carry the losses and promote financially a number of the lines that have air mail contracts." (*Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, p. 49.) This description was not in complete accord with the statements used in the prospectus by which the company was sold to the public in 1929 as an aviation investment trust.

[44] The same, p. 7. Testimony of the Postmaster General.

[45] *United States Daily*, Oct. 15, 1929, Vol. 4, p. 1949. Conferences seem to have been resumed from time to time during the following six months.

These conferences failed to result in a report in which all could concur.[46]

It now appears that attempts were being made to devise a system of payment based on pound mile units. Such a system could have been installed without change in existing law, and would have been favored by contractors with long routes and heavy traffic. Unfortunately, it was difficult to establish a system having any superficial appearance of giving equal treatment on this basis while so adjusting rates that short, light traffic routes could continue to exist. The Chicago-St. Louis route, the Boston-New York route, and especially the Cleveland-Pittsburgh route undoubtedly showed high pound mile costs of operation because of their shortness and light traffic. So far they had been profitable to their owners because previous contract rates had given them the exceedingly high ton mile compensation shown in the table on page 71. Any attempt to set up their compensation rates on a pound mile or ton mile basis could only put the lack of economic merit of these routes in a most glaring light. This may be what Mr. Glover had in mind when he said that efforts of contractors to settle on a plan of payment broke down through their inability to solve the future of the short route.[47]

The failure of the contractors to agree left the solution of their problem to Postmaster General Brown. Several other problems also came to his attention at the same time. One such problem arose from the creation of several passenger airlines independent of the air mail service. These lines were all losing money rapidly, yet could not add to their income by carrying mail under a system

[46] *Post Office Appropriation Bill*, 1931, Hearings, House Committee on Appropriations, Nov. 20, 1929, p. 146.

[47] The same, p. 146.

of competitive bidding without running the risk of encouraging competitors to come in and parallel their routes after seizing the mail contract. Cities on these airlines were also in many cases completely without air mail service, and could not understand why their mail could not be put on the existing passenger lines at negligible cost to the department. Another problem arose in connection with the unprofitable air mail routes which had not been brought into the discussion, although they would be affected by the precedents set. In no case could the compensation of these routes be increased under existing law except as the volume of traffic increased.

New legislation was necessary if substantial relief was to be given to weak air mail routes and unprofitable passenger airlines. Putting such legislation through Congress presented certain obvious difficulties. Existing law carried a flat prohibition against increasing the rate of compensation on any air mail route, and the Congressional reaction to a direct attack upon this prohibition may readily be imagined. Existing law also made no provision for subsidizing unprofitable passenger lines, and the history of all previous air mail legislation indicated Congressional antipathy to such a proposal.

Under the circumstances, the Postmaster General came to the conclusion that the method of paying contractors should be changed from a weight basis to a space mile basis, a change which he advocated in a much publicized speech at Cleveland on January 14, 1930.[48] Under the proposed method of payment, the Post Office Department would definitely contract for certain amounts of space in airplanes scheduled at particular

[48] Full text, *United States Daily*, Jan. 15, 16, 1930, Vol. 4, pp. 3127, 3138, 3154.

times, and would pay for the space regardless of day-to-day fluctuations in volume of mail.

The change to the space mile basis of payment could apparently be made to solve all problems at once. Weak routes and strong routes could be given "equal" treatment under a "scientific" rate formula, once attention was focussed upon the space purchased without too close regard for what was put in it. The injunction against increasing the rate of compensation of particular routes could be conveniently omitted from new legislation and in fact could be inserted only with difficulty when the method of computing the rate of compensation was completely changed. Finally, on a space mile basis, space could be purchased on passenger airplanes even though they happened to be scheduled at hours productive of a negligible amount of postal traffic.

A bill embodying the space mile basis of payment was introduced on February 4, 1930, by Mr. Watres.[49] This bill was probably written in the Post Office Department, for the Postmaster General referred to it at the hearing as "the measure which we have brought here for your consideration,"[50] and throughout a hearing lasting two hours and a half was definitely in the position of one sponsoring the bill.

The Postmaster General began his testimony by alluding to the military value of the airplane. He implied that the Post Office Department had been interested in the airplane even before the World War because of its military value. Immediately after, he indicated that all the efforts of the department up to that time had been

[49] 71 Cong. H.R. 9500. Also introduced on Feb. 14, 1930 by Mr. McNary as 71 Cong. S. 3578.

[50] *Amending Air Mail Act*, Hearing, House Committe on the Post Office and Post Roads, Feb. 19, 1930, p. 7.

directed toward what he called the "ultimate," passenger air transport, which in itself was to be merely a means to an end, namely, national security.[51] The correctness of this view of past departmental attempts to build up a new postal service was extremely dubious. Politically speaking, however, it was an excellent introduction to a long argument in support of a policy of subsidy for passenger airlines.

The new basis of payment was first defended by several arguments which failed to reach the root of the matter, but which must be examined. The Postmaster General attacked the weight basis of payment on several grounds. He asserted that uniformity of compensation could not be obtained by a system based on weight without taking account of distance.[52] He gave several glaring examples of inequalities under the existing system. These inequalities were the normal result of competitive bidding in a new industry; many of the inequalities he already had authority to correct. Moreover, he avoided the fact that the weight system already took account of distance to some extent and could readily have been turned into a pound mile system.

The conclusion is irresistible that the Postmaster General was interested in a peculiar type of equality of compensation, one in which equal payments were to be made for services of unequal value, and was therefore attempting to change a system based on weight and roughly adjusted to distance into a system based on distance and taking little account of weight.

Attention was also directed to the fact that the existing system of payment gave contractors an inducement

[51] The same, p. 3.
[52] The same, p. 4.

to create volume by unethical practices.[53] This evil could only be expected to continue if the department intended to continue paying contractors more for the transportation of mail over a single route than it received for the transportation of mail across the country. Evidently that was its exact intention, possibly justified because some long routes worth continuing could hardly hope to get their transportation costs below the postage rates for some time.

The Postmaster General also objected to placing the risk of a variable traffic upon the contractor, saying: "When 8:30 at night comes at Chicago, the contractor must start whether he has got 1 pound or 1,500 pounds and to ask him to gamble on it, in my judgment, is immoral. I think it is unsound from every viewpoint."[54] Mr. Kelly made the obvious retort ("Of course, he knew about that when he bid, . . .") ; and it is evident that if contractors sold postal service directly to users, they could in no way escape a risk which is omnipresent in business. The risk of a variable flow of traffic was objected to by the traffic manager of American Airways (subsidiary of Aviation Corporation), who alluded to the costs involved, giving examples of variable flow.[55] Presumably, however, the contractors would continue to furnish capacity for peak loads and could not avoid those costs under any system of payments.

All the contentions heretofore presented may be dismissed with the statement that the amount of the payments was the important point. All the attention lavished on method only served to distract attention from this critical issue.

[53] The same, pp. 4-5.
[54] The same, p. 15.
[55] The same, pp. 40-41.

The important part of the bill was the proposed section which provided for the new method of payment and opened the way for passenger transport subsidies.[56] Relief for passenger airlines was thereby provided in three ways. First, the mere change in method of payment to the space mile basis made payments for service possible even in the absence of mail to carry. Second, while a maximum of $1.25 per mile was permitted in payment for the entire capacity of an airplane, the bill intentionally omitted any provision requiring proportionally smaller payments for fractional parts of capacity. The Postmaster General expected the use of some such scale as 10 cents a mile for 25-pound capacity and $1.25 a mile for 2,000 pounds.[57] In other words, 1.25 per cent of capacity might be purchased for 8 per cent of the total capacity price. Third, lest passenger lines harm their own interests by cut-throat competition for the chance to carry mail, it was provided that contracts might be awarded by negotiation. This last feature, which was regarded as absolutely essential if the Postmaster General were to help deserving passenger airlines,[58] aroused far more controversy than any other aspect of the bill. It will be returned to later in the discussion.

The Postmaster General left no doubt as to his intentions with respect to passenger airlines. After referring to the large number opened during a period of optimism, he stated that passenger rates low enough to attract traffic were substantially below the cost of operation, and said: ". . . the suggestion is now made that we put some mail on the passenger ships on regular lines, enabling

[56] The same, p. 1. Section 4 of the bill as reprinted.
[57] The same, p. 22.
[58] The same, pp. 23-24.

them to carry on until the flying public increases sufficiently to pay the costs of air transport and until those costs can be reduced by the development of larger planes and other improvements that are in contemplation."[59]

That the amount of space purchased was not to be determined by the amount needed for mail was clear from the Postmaster General's statement that ". . . we would try to take sufficient space to keep the carriers from going into bankruptcy until they could get the people to fly."[60] However, he indicated that the aid was not to be large in amount: "I would say that on the passenger planes I probably would not take over 50 to 100 pounds capacity; that the compensation would probably be somewhere from 15 to 30 cents a mile, which would be sufficient to keep the operators in the air until they can solve their problem."[61] Finally, the aid was to be closely confined to main transportation routes:

Mr. Hogg. Under your contemplated system would this network be developed to cover the entire United States?

Postmaster General Brown. You mean network of passenger carrying lines?

Mr. Hogg. Yes.

Postmaster General Brown. Not with government aid. We think that would create too great a burden on the taxpayers. We think that the right way to do it is to pick out some essential transportation routes that the public are using now and have been using ever since we had a country, and to give all the government encouragement we can to those lines. We want to see if we can not make these main lines self-sustaining and develop a habit of air travel which will then spread to all the other lines. But we have no thought of covering the whole map with air passenger lines aided by the government.[62]

[59] The same, p. 12.
[60] The same, p. 20.
[61] The same, p. 14.
[62] The same, pp. 21-22.

Relief for the unprofitable air mail routes was provided by the proposed new section on issuance of route certificates. It was in many respects an improvement over the language of the old version, but the essential change was the elimination of the prohibition against increasing the rate of compensation. Instead, a proviso was inserted to the effect that rates were not to exceed $1.25 per mile. The purpose of this change in Section 6 was brought out clearly by Mr. Brown, who emphasized the hardships experienced by numerous contractors operating at a loss.[63] At the time no Congressman present was prepared to go on record as willing to let unsuccessful contractors go through bankruptcy, although Mr. Kelly implied that contractors who had made mistakes could quit.[64]

One other important purpose was to be served by new legislation. The Postmaster General desired to solve the problem of the uneconomic short routes either by consolidating such routes with the trunk lines they fed, or else by extending them to a reasonable length. On a previous occasion the department had proposed that the Cleveland-Pittsburgh route be extended to Washington and the Chicago-St. Louis route to New Orleans.[65] At the hearing the Postmaster General expressed a desire for a general power to extend and consolidate routes in order that he might also be able to take advantage of the existing tendency towards financial consolidation of routes.[66] This power was to be conferred by a new section to be added to the Air Mail Act, concerning which

[63] The same, pp. 9-10.
[64] The same, p. 24.
[65] *New York Times*, Dec. 3, 1929, p. 54.
[66] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, p. 5.

the Postmaster General said: "The purpose of that is to enable us to revamp the air mail plan of the country and make it a logical one, so far as we have the wisdom to do so."[67]

A majority of the House Committee on the Post Office and Post Roads was favorable to the bill as originally drafted. A few minor changes were made, and the bill was reported on March 24, 1930.[68]

A minority report opposing the bill was filed at the same time,[69] signed by Congressmen Mead and Morehead. They were so successful in arousing opposition to the bill among the leaders of the House that the bill was taken off the calendar, and a new bill finally written.[70]

Opposition to the bill centered around the provision permitting award of contracts without competitive bidding. It was referred to in the minority report as follows: "This provision, making the Postmaster General a law unto himself, eliminates competition, and is nothing more than a subsidy in the interest of the aircraft industry."[71] The minority report advocated safeguards, and suggested the adoption of an amendment sponsored by Mr. Kelly. This amendment would have eliminated the award of contracts by negotiation, and would have substituted a requirement that on contracts for space in which not more than 225 pounds could be transported at rates not in excess of 40 cents a mile, bidding might be limited to air transport firms previously in operation for at least six months.

[67] The same, p. 27.
[68] 71 Cong. H. rep. 966.
[69] The same.
[70] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 195.
[71] 71 Cong. H. rep. 966.

A new bill was then introduced by Mr. Watres, embodying a similar provision and other new provisions of less importance. It reached approval without change, and provided as follows:

Section 4 of the Air Mail Act of February 2, 1925, as amended by the Act of June 3, 1926 (44 Stat. L., 692; U.S.C., Supp. III, Title 39, Sec. 464), be amended to read as follows:

"Sec. 4. The Postmaster General is authorized to award contracts for the transportation of air mail by aircraft between such points as he may designate to the lowest responsible bidder at fixed rates per mile for definite weight spaces, one cubic foot of space being computed as the equivalent of nine pounds of air mail, such rates not to exceed $1.25 per mile: *Provided,* That where the air mail moving between the designated points does not exceed 25 cubic feet, or 225 pounds, per trip the Postmaster General may award to the lowest responsible bidder, who has owned and operated an air transportation service on a fixed daily schedule over a distance of not less than 250 miles and for a period of not less than six months prior to the advertisement for bids, a contract at a rate not to exceed 40 cents per mile for a weight space of 25 cubic feet, or 225 pounds. Whenever sufficient air mail is not available, first class mail matter may be added to make up the maximum load specified in such contract."

Sec. 2. That Section 6 of the Act of May 17, 1928 (45 Stat. L., 594; U.S.C., Supp. III, Title 39, Sec. 465c), be amended to read as follows:

"Sec. 6. The Postmaster General may, if in his judgment the public interest will be promoted thereby, upon the surrender of any air mail contract, issue in substitution therefor a route certificate for a period of not exceeding ten years from the date service started under such contract to any contractor or subcontractor who has satisfactorily operated an air mail route for a period of not less than two years, which certificate shall provide that the holder thereof shall have the right, so long as he complies with all rules, regulations and orders that may be issued by the Postmaster General for meeting the needs of the postal service and adjusting mail operations to the advances in the art of flying and passenger transportation, to carry air mail over the

route set out in the certificate or any modification thereof at rates of compensation to be fixed from time to time, at least annually, by the Postmaster General, and he shall publish in his annual report his reasons for the continuance or the modification of any rates: *Provided,* That such rates shall not exceed $1.25 per mile. Such certificate may be canceled at any time for wilful neglect on the part of the holder to carry out any rules, regulations, or orders made for his guidance, notice of such intended cancellation to be given in writing by the Postmaster General and 45 days allowed the holder in which to show cause why the certificate should not be canceled."

Sec. 3. That after Section 6 of the said Act as amended, additional sections shall be added as follows:

"Sec. 7. The Postmaster General, when in his judgment the public interest will be promoted thereby, may make any extensions or consolidations of routes which are now or may hereafter be established.

"Sec. 8. That the Postmaster General in establishing routes for the transportation of mail by aircraft under this Act may provide service to Canada within 150 miles of the international boundary line, over domestic routes which are now or may hereafter be established and may authorize the carrying of either foreign or domestic mail, or both, to and from any points on such routes and make payment for services over such routes out of the appropriation for the domestic air mail service: *Provided,* That this section shall not be construed as repealing the authority given by the Act of March 2, 1929, to contract for foreign air mail service.

"Sec. 9. After July 1, 1931, the Postmaster General shall not enter into contracts for the transportation of air mail between points which have not theretofore had such service unless the contract air mail appropriation proposed to be obligated therewith is sufficient to care for such contracts, and all other obligations against such appropriation, without incurring a deficiency therein."[72]

As rewritten, the bill had practically no opposition. It

[72] 71 Cong. H.R. 11704. After approval, Apr. 29, 1930, 46 Stat. L., 259.

was pushed through the House with ease,[73] and passed the Senate without debate,[74] on the day it was reported from committee. The committee report ended as follows:

> The Postmaster General appeared personally before the committee in behalf of the bill, which has the earnest support of the department. Prompt action is deemed advisable for the reason that many air mail contracts expire early in May, 1930.[75]

Five air mail contracts had been extended for six months on November 6, 1929, as previously noted. They could not again be extended under the law,[76] and the rapidly approaching date of their expiration was undoubtedly a factor in expediting the legislation.

In discussing this episode with a representative of one of the larger contractors, the writer pointed out that if legislation had failed at the last moment, route certificates could have been issued under the terms of the 1928 legislation, just as they could have been issued at any time for months previously. The representative agreed, but stated a conviction that instead the Postmaster General would have permitted the contracts to expire, since he had taken the position that legislation was necessary. The contractors were recompensed for their risk in waiting for legislation by the continuance of their original contract rates during the six months of delay. Getting the Watres Act through Congress cost the government and people of the United States approximately a million dollars through needless compensation of contractors at excessive rates.

[73] *Cong. Record,* Apr. 21, 1930, Vol. 72, pp. 7372-79.
[74] The same, Apr. 24, 1930, Vol. 72, p. 7618.
[75] 71 Cong. S. rep. 524.
[76] Post Office Department, *Postal Laws and Regulations,* 1924 ed., Sec. 1356.

CHAPTER V

A REGULATED INDUSTRY, 1930-33

The approval of the Watres Act on April 29, 1930 marked a turning point in the history of the air mail service. Previously, the Postmaster General and the carriers were simply parties to contracts by which the rights and duties of each were rigidly defined. In the Watres Act, provision was made for the exchange of air mail contracts for air mail route certificates, and such certificates established a wholly new relationship between the carriers and the Postmaster General. Exchange of contracts for certificates gave the carriers the right to operate for several additional years, but required them to comply with administrative rulings of the Postmaster General in many important respects. The carriers thus took on the character of participants in a regulated industry.

Contracts were exchanged for certificates at varying dates after the approval of the Watres Act, but almost all of the routes then in existence were operating under certificates within a few months. The first five routes were placed upon a certificate basis on May 5, 1930, and others followed in serial order during the summer of 1930. In a few cases, it was necessary to wait for the completion of the required two years of operation and certificates were not issued until 1931. Two new routes established after the approval of the Watres Act, as noted below, were placed upon a certificate basis early in 1933, thus completing the exchange of contracts for certificates and placing the carriers upon a uniform basis of regulation. The certificates all contained substantially the same provisions, and were all written to expire on

April 5, 1936. The date was determined by allowing the oldest carrier the entire permissible ten years of operation; other periods of operation were cut short to conform.

The broad regulatory authority conferred by the Watres Act became more specific in the terms of the route certificates. It appears that under the terms of the Watres Act and the route certificates, the discretion of the Postmaster General was almost unlimited with respect to the following matters pertaining to air mail service:

1. The location of routes.
2. The conditions of bidding for contracts.
3. The consolidation and extension of routes.
4. The amount and quality of mail and passenger service scheduled over routes.
5. The equipment used and personnel employed.
6. The system of accounts used by carriers.
7. The compensation of carriers, including compensation for losses incurred in passenger service.

New administrative powers are likely to follow old precedents, and the powers just listed are not exceptions. The peculiarity of the situation arises from the fact that the precedents followed make very strange bedfellows. At least three of their sources are important: (1) Long-standing powers incident to the conduct of the postal service, (2) powers to grant subsidies by way of compensation for the transportation of mail, and (3) powers exercised by railroad and public utility commissions. The power to decide the location of air mail routes and to prescribe exact specifications for service is analagous to the control exercised over mail transportation on star routes, power-boat routes, etc. The implied authority to subsidize passenger air transport through permission to

pay mileage rates in excess of the cost of mail transportation follows the model set in the Merchant Marine Act of 1928, which authorized the Post Office Department to make grants in aid to merchant shipping, but did not require that any mail at all be carried by the shipping aided.[1] The duty to determine from time to time the rate of compensation of air mail route certificate holders forced the resort to certain public utility regulatory devices, notably the requirement of uniform accounts and reports.

The distinction between the regulatory powers of the Post Office Department and those of the Department of Commerce may be noted. The Department of Commerce received broad powers designed to promote safety in air commerce from the Air Commerce Act of 1926.[2] Jurisdiction over aircraft and airmen engaged in interstate commerce was assumed almost at once, and regulation in these fields has become progressively more complex and more stringent. Jurisdiction over interstate scheduled passenger air transport services was assumed in 1930. No such service may now be placed in operation without first securing a certificate of authority from the Secretary of Commerce. Existing services are required to adhere to high standards of operation set forth in detailed regulations.

The Department of Commerce concerns itself little with regulation of an economic nature; its powers are severely limited in this respect, since its regulatory authority is designed only to promote safety. It is specifically forbidden to establish airline monopolies.[3] Regulation by the Post Office Department, on the other hand,

[1] 45 Stat. L., 689-98.
[2] 44 Stat. L., 568.
[3] The same, p. 571.

although limited to air mail carriers, was primarily economic in character and only incidentally concerned with safety. It was designed to promote a balanced group of air transport companies, an effective air mail service, and a satisfactory passenger service. Post Office regulation tended to establish the pattern of regulated monopoly found in other public service industries.

This chapter is devoted to tracing the development of the administrative powers of the Post Office Department under the Watres Act and completes the history of air mail service through the end of the fiscal year 1933. The first three sections consider various activities designed to reshape the air transport net, including the award of two new air mail routes, the consolidation of certain routes, and the shaping of systems by route extensions. The next three sections are devoted respectively to regulatory activities having to do with service, accounts, and compensation.

I. NEW TRANSCONTINENTAL ROUTES

The Postmaster General called a conference of air transport operators immediately after the approval of the Watres Act, to consider plans for the future. Representatives of important non-mail passenger airlines were present as well as the representatives of air mail carriers, since the Postmaster General insisted that pioneer passenger carriers were to receive the same consideration as mail carriers in plans for the future. A committee of the operators was formed, and given instructions to work out plans for future development under the Watres Act, especially with reference to a balanced group of air transport systems.

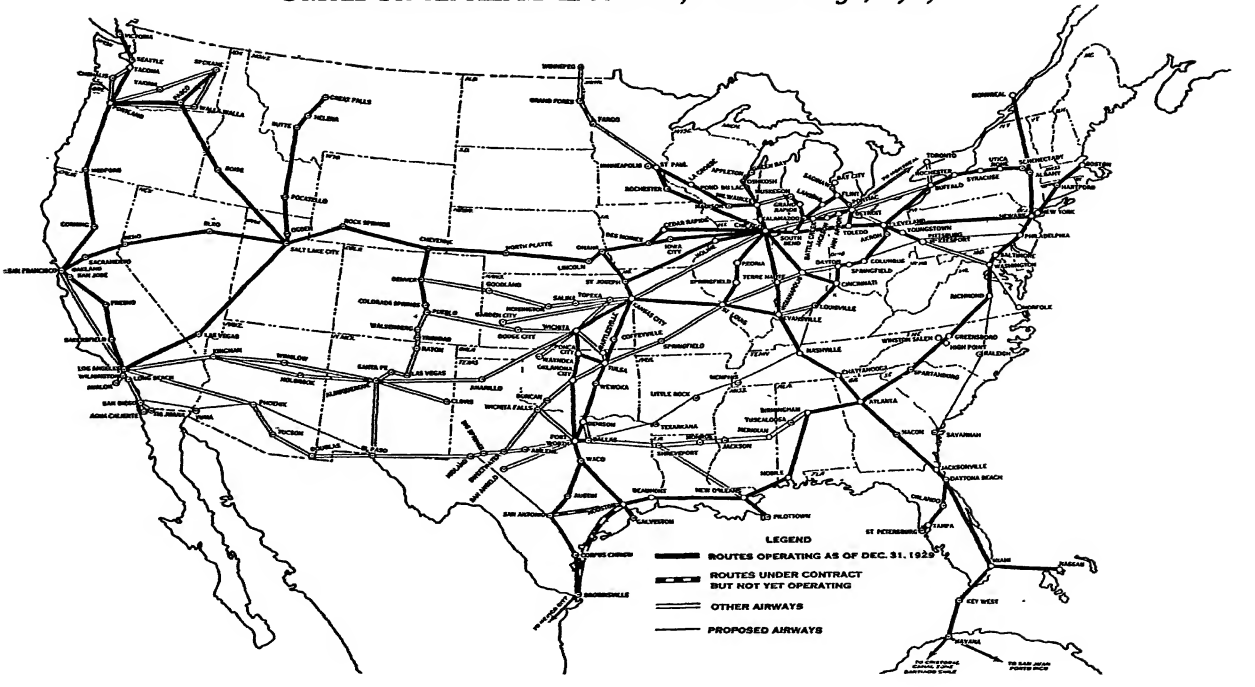
The existing air transport net was badly in need of replanning. The speculative enthusiasm of 1928 and

1929 had led to much unwise expansion. Many routes were served independently by mail and passenger carriers, and sometimes by more than one passenger carrier, although no route provided enough traffic to permit even one carrier to be self-supporting. Financial consolidation had brought about groupings of routes and services; but the services so joined in most cases did not form coherent systems.

The Postmaster General desired the substitution of a group of closely knit air transport systems, each serving a considerable area with both mail and passenger service. To attain this result, he favored the reorganization of mail and passenger services to provide competition over alternative routes between main centers, but to end wasteful duplication of service over identical routes. To aid in the process of reorganization, he was prepared to open new routes, to extend old ones, and to offer suitable compensation for mail transportation.

The committee of operators gave its principal attention to proposed changes in the existing transcontinental services. As indicated by the map on page 110, only one transcontinental route was in use for mail service—the old government route from New York to San Francisco by way of Chicago, Omaha, and Salt Lake City. An important branch of this route provided Los Angeles with service by way of Salt Lake City. Two other routes were in use, however, to provide Los Angeles with passenger service east. Western Air Express was operating an air passenger service between Los Angeles and Kansas City, where connections were made with other airlines and surface transport facilities. Transcontinental Air Transport was using substantially the same route for its combination air-rail service between New York and Los

United States Air Mail Routes, December 31, 1929[a]



[a] *Air Commerce Bulletin*, Jan. 15, 1930, Vol. I, p. 5.

Angeles by way of Columbus, St. Louis, and Kansas City. A second route connected Los Angeles with El Paso, Fort Worth, and Atlanta, and was being operated in piecemeal fashion by a number of small carriers.

The existing passenger services led the committee to recommend that two new transcontinental air mail routes be established, one connecting Los Angeles with New York by way of St. Louis, the other connecting Los Angeles with Atlanta by way of Fort Worth. The committee had some difficulty in agreeing upon the companies best fitted to operate the respective routes or parts of them, but finally agreed upon a tentative allocation of the middle route by which Western Air Express would have received the part west of Kansas City, Transcontinental Air Transport the part between Kansas City and Pittsburgh, and Pittsburgh Aviation Industries the part east of Pittsburgh. More difficulty seems to have been experienced in the case of the southern transcontinental, and the committee may not have made any recommendation with respect to this route.[4]

The procedure by which the two new routes could be placed in the hands of the recommended carriers was outside the province of the committee. The Watres Act required competitive bidding for new routes, but a loophole appeared in the provision by which the Postmaster General was authorized to extend existing routes. The impression was widespread in the aeronautical press at the time that the new routes would be placed in operation by the extension of existing routes, with no competitive bidding if it could possibly be avoided. There is no evidence that the Post Office Department intended

[4] "Uncertainty Marks Change in Air Map," *Aviation*, June 21, 1930, Vol. 28, pp. 1236-37.

to avoid competitive bidding, and the Superintendent of Air Mail Service then in office denies this view.[5] It happened, however, that the two routes were not advertised until after receiving the decision of the Comptroller General in a test case involving the extension of the Chicago-Minneapolis route from Minneapolis to Omaha.[6] The decision was unfavorable on the ground that the proposed extension was a wholly new route having merely a point of contact with the old route. This decision ended any misapprehension as to the possibility of extending the Salt Lake City-Los Angeles route from Los Angeles to Kansas City or otherwise placing the transcontinental routes in operation by extending existing routes.[7]

The two routes were advertised for competitive bids on August 2, 1930, and proposals were opened on August 25, 1930. Two bids were presented for the New York-Los Angeles route, and one for the Los Angeles-Atlanta. The higher of the two bids for the middle route and the single bid for the southern route were accepted.[8]

The reasons for the small amount of competition in

[5] Evidence has become available since the above was written which indicates clearly that the popular impression was correct and that the Postmaster General did not intend to resort to competitive bidding if it could be avoided. He hoped to establish both new transcontinental routes by extensions of existing air mail routes, following which they might have been sublet for operation to the companies recommended by the conference of operators. See the testimony of Paul Henderson, Hainer Hinshaw, and D. M. Sheaffer, *Investigation of Air Mail and Ocean Mail Contracts*, Hearings, Special Senate Committee on Investigation of Air Mail and Ocean Mail Contracts, 1934, Part 4, pp. 1476, 1560-61, 1584, 1592.

[6] Letter from the Comptroller General to the Postmaster General, dated July 24, 1930, in the files of the Post Office Department.

[7] R. Sidney Bowen, Jr., "The Trend of Activities," *Aviation*, September 1930, Vol. 29, p. 181.

[8] 72 Cong. S. doc. 70, pp. 659, 693, 1253.

bidding are partly to be found in the conditions set forth in the two advertisements.[9] The following conditions were distinctly more severe than in previous instances of advertising of air mail routes, or were wholly new:

1. A bond of $250,000 was required with each bid.
2. Service not later than 30 days after the award of a contract.
3. Six months' experience in operating regular night schedules over a route at least 250 miles long. If a joint bid was submitted, however, the experience of either bidder would meet the requirement.
4. The amount of service and the possible compensation were not clearly stated. Reference was made to the Watres Act, under which the routes might have been thrown open either to unrestricted bidding against the $1.25 per mile limit or to restricted bidding for loads of 225 pounds or less at rates of not more than 40 cents per mile. The original route certificate rate formula, providing for a complicated scheme of payment including special variable allowances for night flying, etc., was published as part of the advertisement. Each bidder was required to present one bid in the form of a percentage of maximum rates shown by the formula, and, at the option of the department, the bid could be applied either against the rate of 40 cents a mile for 225 pounds or against a rate of 75 cents a mile plus certain variables shown by the formula for 423 pounds. A bidder presenting a bid of 100 per cent, for example, would not know until the award of the contract whether he was to be paid 40 cents a mile or something over 75 cents a mile.

The amount of the bond and the necessity of preparing to operate within 30 days automatically excluded small companies and those not already operating passenger or mail services. The night flying requirement eliminated the existing passenger airlines unless they were willing to join with an air mail carrier in the presentation of a joint bid. The uncertainty as to the rate

[9] The same, pp. 658-64, 692-97.

of compensation probably had the effect of shutting out companies not assured of friendly treatment, unless they were already in operation over one of the routes and therefore willing to take any award.

Both of the successful bids were joint bids. The single bid of 100 per cent of maximum rates for the Los Angeles-Atlanta route was presented jointly by Southwest Air Fast Express, Inc., a passenger carrier, and Robertson Aircraft Corporation, an air mail subsidiary of Aviation Corporation. The successful bid for the New York-Los Angeles route, amounting to 97.5 per cent of maximum rates, was presented jointly by Transcontinental Air Transport and Western Air Express.[10] After various corporate and operating reorganizations, the contract for the Los Angeles-Atlanta route was taken over by American Airways, air transport subsidiary of Aviation Corporation, while the New York-Los Angeles route came into the possession of a newly formed company, Transcontinental & Western Air, Inc.

The award of the contract for the middle route received special attention from the Comptroller General because of some complaint against the award to the high bidder. The low bidder had failed to meet the night flying experience requirement, but the Comptroller General held that the use of the requirement had been an unwarranted extension of the statutory permission to require six months' operating experience. However, after an interchange of several letters, the award to the high bidder was upheld by the Comptroller General.[11]

[10] The same, pp. 664-65, 697-98, 1253.

[11] If statements made in letters to the Comptroller General may be accepted, it appears that the low bidder was a newly formed holding company, in existence only seven days at the time of bidding and with no actual operating experience of any kind. It offered the experience of its

The two routes were treated somewhat differently in the actual award of the contracts. The middle route presented much the best traffic prospects, but the contractors for it received an award under the 225-pound bracket of the rate formula and therefore received only 97.5 per cent of 40 cents a mile. The contractors for the southern route fared better in that they were given an award under the 423-pound bracket and thus received 75 cents a mile plus certain other allowances.[12] The Superintendent of Air Mail Service then in office explains that this diversity of treatment was due to the fact that the contractor on the southern route was under the necessity of undertaking heavy development expenses. Certainly the expected volume of traffic could have had little effect on the award, for in January 1932 the average load on the southern route was 77 pounds.[13]

The award of the two contracts led to the reorganiza-

operating subsidiaries but they were not yet owned and were to come into its control only in the event of the award of the contract and its proving to be profitable. The holding company had yet to provide itself with cash by the sale of stock and presented no proof of subscriptions. The proposal itself was irregular and defective. Altogether, a careful reading of the correspondence between the Postmaster General and the Comptroller General indicates that the low bidding company was the result of an exceptionally crude piece of promotion, and that if the proposed company had been awarded the contract, it could not have given performance and might not have made good on its bond. (Letters from the Comptroller General to the Postmaster General dated Oct. 9, 1930, Dec. 16, 1930, and Jan. 10, 1931, and from the Postmaster General to the Comptroller General dated Oct. 23, 1930, and Dec. 29, 1930, in the files of the Post Office Department.)

The present postal administration seems disposed to challenge many of the statements made and is of the opinion that the award should have been made to the low bidder. *New York Times*, Feb. 15, 1934, p. 10.

[12] 72 Cong. S. doc. 70, pp. 651, 688.

[13] Miles flown were 188,045 (Post Office Department, Air Mail Service, *Statistical Report*, January 1932) and pound miles carried 14,453,315. (*Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 185.)

tion of air transport systems along the lines desired by the Postmaster General. After the two competing passenger carriers on the New York-Los Angeles route obtained the air mail contract as joint bidders, they organized a joint subsidiary, Transcontinental & Western Air, Inc., which took over the mail contract and the passenger operations of the parent companies, ending the competition in passenger service.[14] The two joint bidders for the Los Angeles-Atlanta route had not previously operated on the route, but after the contract was obtained, the assets of one joint bidder, Southwest Air Fast Express, were sold to Aviation Corporation, which controlled the other joint bidder.[15] Passenger services previously operated by the Southwest Air Fast Express over the routes of an air mail carrier were promptly abandoned. Aviation Corporation also appears to have purchased the independent companies previously providing passenger services over parts of the Los Angeles-Atlanta route.

The effect of the changes just noted was to bring into existence three separate transcontinental air transport systems. The original transcontinental air route, New York-San Francisco, had come under the control of United Aircraft and Transport Corporation some time previously.[16] Aviation Corporation obtained the new southern transcontinental route, while the new middle route went to a combination of companies, neither of which was related to either United Aircraft and Transport Corporation or to Aviation Corporation.

[14] Stock ownership in the new company was divided into three parts, 47.5 per cent each to Transcontinental Air Transport and Western Air Express, and 5 per cent to Pittsburgh Aviation Industries. *Poor's Industrials*, 1931, p. 1941.

[15] *Poor's Cumulative*, 1930, Vol. 4, p. 454.

[16] *Poor's Industrials*, 1931, p. 2595.

The final allocation of the three routes to three different companies appears to have been more than a fortunate coincidence. Why did United Aircraft and Transport Corporation refrain from bidding on routes which paralleled its own and which could be expected to divert much of its traffic? Why did the successful bidders each bid on only one route? Why did Eastern Air Transport fail to bid on the southern transcontinental route, with which its routes connect at Atlanta? The Postmaster General has specifically denied that he told any one not to bid,[17] but there is not much doubt that he made it clear to the operators assembled in conference that he would consider it most unfortunate if two of the transcontinental routes came into the hands of the same company.[18] Evidently the five or six possible bidders were able to reach an agreement among themselves which closely resembled the recommendations noted above as made by the committee of operators to the Postmaster General. This impression is strengthened by the fact that the bidding was rather accurately predicted in the aeronautical press several days before the bids were opened.[19]

A final assessment of the administrative policies followed in the award of the two contracts is somewhat difficult. The antipathy of the Postmaster General toward competitive bidding when mail contracts were to be awarded for routes on which passenger transport services were already in operation appears well founded. If bidding is really competitive, cut-throat competition

[17] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 192.

[18] "Three Considered Likely Mail Bidders," *Aviation News*, Aug. 16, 1930, pp. 17, 20.

[19] The same.

for the mail contract is almost inevitable, particularly in a business so susceptible to promotional activities. The desire of the Postmaster General for a group of balanced air transport systems may also be commended, since the possession of two transcontinental routes by the same carrier would be unfortunate. Finally, with the control by the Postmaster General so broad in all respects during eight of the allotted ten years of operation, competitive bidding to select the carrier and set the rate of compensation for the first two years of operation seemed futile.

On the other hand, these considerations were expressly rejected by Congress when the original Watres bill was replaced by an Act requiring competitive bidding. It follows that the conditions of bidding set up by the Postmaster General were contrary to the intent of Congress; and it is hard to believe that the actual bidding conformed so closely to the known desires of the Postmaster General without an understanding among the carriers which bordered upon collusion.[20]

The foregoing part of this section was written almost two years ago and was in galley proof prior to the recent disclosures before a special committee of the Senate and the cancellation of the air mail contracts. It has seemed worthwhile to let it stand as written, except for the corrections noted in footnotes, as an exhibit of the conclusions which could be reached on the basis of evidence

[20] As this book goes to press an investigation of the events discussed in this chapter is being conducted by the Special (Senate) Committee on Investigation of Air Mail and Ocean Mail Contracts, and evidence presented before the committee is rapidly becoming available.

Other new evidence concerning the events discussed in this section was made available when the present Postmaster General sent his letter in explanation of the cancellation of air mail contracts to Senator Black of the special committee. The letter and the exhibits attached may be found in full text in the *New York Times*, Feb. 15, 1934. p. 10.

which has long been available. Since reaching those conclusions, the writer has had access to a condensed transcript of the testimony given before the Senate committee up to the time of the MacCracken contempt episode, as well as the accounts published in newspapers.

The conclusions as stated remain unchanged in substance. Although the writer cannot pass upon the evidence as a lawyer, any lingering personal doubts as to collusion in the bidding for the two contracts have been removed, and it is apparent that the intention of Congress was disregarded in a very flagrant and high-handed manner. The arrangements by which competition was eliminated were very costly, and the costs undoubtedly went into the rate base on which the carriers hoped to earn a return. Some of the more vociferous passenger airlines probably received much more than their just deserts, while others of more or less merit were given no consideration at the 1930 conferences or at any other time. Even among the air mail carriers, a considerable amount of favoritism has been indicated, although perhaps not proved. On the other hand, the writer is still of the opinion that the creation of a group of well integrated air transport systems was in the public interest, and that in the main the Postmaster General moved in that direction. It was more than unfortunate that methods akin to conspiracy were used, and that in many instances private rather than public interests appear to have been served.

II. CONSOLIDATION OF ROUTES

Authority to consolidate air mail routes was conferred upon the Postmaster General by one of the sections added to the Air Mail Act by the Watres Act. The utilization of this authority has been somewhat peculiar.

The authority was asked for two reasons: (1) to enable the Postmaster General to take advantage of the existing tendency towards financial consolidation of air mail routes, and (2) to enable the Postmaster General to reorganize the air mail routes into a small number of balanced systems.[21] One conception involved the idea that the bringing of groups of air mail routes under the same ownership made possible economies which would not be passed on to the department if it could not consolidate routes already in the same hands. The other conception was more far reaching. It involved the definite planning of air transport systems and the possible reallocation of air mail routes regardless of ownership.

The exact amount of power conferred or even intended to be conferred by the consolidation clause is a matter of doubt. This aspect of the Watres Act received almost no attention either at the hearings on the legislation or during debate, a fact which in itself is rather peculiar if Congress intended to confer power to consolidate routes regardless of ownership. In practice, an attempt was made to work out some scheme of allocation of routes which would provide a more orderly group of air mail systems and receive the carriers' approval.[22] The attempt broke down through the inability of the carriers to agree upon terms, and the Postmaster General did not push his authority far enough to result in a case which would test his power to order the consolidation of routes not in the same hands.

No attempt was made to bring about a general consolidation of all the routes already in the possession of

[21] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, pp. 5, 27.

[22] "Mail Payment Rates Announced," *Aviation*, June 7, 1930, Vol. 28, p. 1148.

the same carrier. At least one of the two large carriers in possession of several contiguous routes would have been glad to see its routes consolidated, in order to simplify its accounting. Its request was not favored by the Post Office Department, because it wished to continue to receive its cost information separately for the existing routes.

Under recent arrangements, maintenance of the existing routes as separate entities affected only the paper work of the carriers and the department. Equipment and personnel were transferred at will between routes under the same management, costs being allocated in accordance with the time they remained on each route.[23]

Notwithstanding the failure of any general consolidation program, four route consolidations have been made, as follows:[24]

Salt Lake City-Pasco with Pasco-Seattle, July 1, 1930
New York-Atlanta with Atlanta-Miami, April 1, 1931
Albany-Cleveland with Cleveland-Nashville, May 15, 1931
Chicago-Atlanta with St. Louis-Omaha, May 15, 1931

In each case the routes were in the hands of the same carrier before consolidation, and the reasons for the consolidation were somewhat different from those contemplated when the Watres Act was passed.

The first consolidation listed appears to have been unique in purpose, if the purpose may be deduced from its effects. The Pasco-Seattle route was obtained in the summer of 1929 by Varney Air Lines at the extraordinary bid of $0.09 per pound, in competition with three other bids of respectively $0.74, $0.97, and $1.19 per pound.[25] The successful bidder was already in possession

[23] Information from the chief accountant, Division of Air Mail Service.
[24] *Report of the Postmaster General*, 1931, pp. 125.
[25] 72 Cong. S. doc. 70, pp. 3, 1253.

of the route from Salt Lake City to Pasco, and apparently felt it necessary to obtain the connecting route at any cost. Having obtained it, for nearly a year the contractor received an average gross return of 5 cents per airplane mile from its operation.[26] The new route was not eligible for a route certificate permitting readjustment of compensation until September 15, 1931. The Salt Lake City-Pasco route was placed on a certificate basis on May 5, 1930, however, and the effect of merging the two routes on July 1, 1930 was to put the Pasco-Seattle part of the route on a certificate basis over 14 months before it would otherwise have been eligible.[27] The carrier then received compensation for all of the consolidated route at certificate rates. For service in June 1930, the last month before the routes were consolidated, the contractor received $60,127.16; for service in July 1930, after the change, he received $91,628.05.[28] Under the circumstances, it is hard to believe that an Act which cost the government at least $350,000 had any other purpose than to relieve a contractor of the consequences of his own folly, although the Superintendent of Air Mail Service then in office has assured the writer that the routes were consolidated because they were essentially one operation from the postal standpoint, and for no other reason. No objection was made by the Comptroller General, who passed the arrangement for payment without comment.

The other three route consolidations are in a different class; they appear to have been resorted to in order to make certain proposed route extensions more palatable

[26] Computed from *Report of the Postmaster General*, 1930, p. 137.
[27] The same.
[28] Post Office Department, Air Mail Service, *Statistical Report*, June, July 1930.

to the Comptroller General, and will therefore be discussed in the next section.

III. SHAPING SYSTEMS THROUGH EXTENDING ROUTES

When the Watres Act was approved in 1930, one coherent air transport system had already taken shape through the financial consolidation of the parts of the old government transcontinental air mail route and certain of its branches. Transcontinental trunk lines for two other systems were provided by the award of the two new air mail routes discussed in a previous section. Each of the three transcontinental systems was planned for both mail and passenger service, and was eventually expected to include branch lines providing service for off-line points. Certain of these branch lines were provided by existing air mail and passenger services; but in many cases the parts of systems needed linking up by route extensions, and in other cases extensions were believed to be needed in order to provide service to new points. The possibility of smaller transport systems of regional rather than transcontinental scope was also evident, and these small regional systems could be expanded by route extensions.

Little time was lost in putting into use the power to extend air mail routes granted to the Postmaster General by the Watres Act.[29] The exact limits of this power had first to be sought, however, and were supplied by the Comptroller General in two decisions.

[29] Eight short extensions, varying in length from 18 to 141 miles, had been permitted prior to the Watres Act by a decision of the Comptroller General. They were operated by the respective carriers without additional compensation, except any additional compensation which may have resulted from increased mail traffic. *Decisions of the Comptroller General*, Vol. 6, pp. 739-41; *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 1, 1932, p. 18.

The first test case on route extensions under the Watres Act was propounded in a letter from the Postmaster General to the Comptroller General on July 9, 1930, proposing to extend the Chicago-Minneapolis route from Minneapolis to Winnipeg and from Minneapolis to Omaha. The Comptroller General returned a lengthy decision on July 24, 1930, from which the following is quoted:

> No hard and fast rule may be laid down in advance for the determination of the question whether a proposed extension of an air mail route—an improvement of an existing route "by slight additions"—may be made and competitive bidding eliminated, because the facts in each particular matter of proposed extension are for consideration and may vary in each case. It may be stated generally, however, that any extension of an established route must have as its basis the public need stipulated by the law as necessary to be found and determined by the Postmaster General, an immediate relationship to the basic project and existing service to be so extended, and such subordinate relationship to the existing route as to be merely an extension thereof rather than a major addition thereto. An added service to an existing contract cannot properly be classed as an extension which would tend to overshadow or subordinate the route sought to be extended.[30]

The Comptroller General disapproved the Minneapolis-Omaha extension outright, and questioned the Minneapolis-Winnipeg extension, although he later permitted it to be placed in operation.

The second test case arose on August 22, 1930, when the Postmaster General asked the Comptroller General to approve the extension of the Cleveland-Louisville route from Louisville to Fort Worth. This case involved no abrupt change of route direction or discontinuity in the flow of traffic, but the proposed extension was 745

[30] From correspondence in the files of the Post Office Department.

miles long, compared with an original route length of 345 miles. On September 10, 1930 the Comptroller General replied that he saw no reason why the proposed extension should not be awarded by competitive bidding and asked for more information.[31]

It proved possible to avoid the limitations imposed by the Comptroller General by resort to a number of devices. Routes were extended a short distance at a time; two different routes were extended to the same point, one extension sometimes being sub-let by the holder to the holder of the other; and existing routes were consolidated into a single route of sufficient length to warrant a long extension. The result was that review by the Comptroller General was of little effect in compelling competitive bidding.[32]

[31] The same.

[32] Thus, the objections of the Comptroller General to the extension of the Cleveland-Louisville route to Fort Worth were met by first extending it to Nashville on Mar. 2, 1931; consolidating it with the Albany-Cleveland route on May 15, 1931; and extending it from Nashville to Fort Worth on June 15, 1931. It was also extended from Albany to New York City on Aug. 1, 1931. The anomalous result was a route 1,793 miles long which connected New York and Fort Worth by way of Albany, Buffalo, Cleveland, and Nashville.

Service between Chicago and New Orleans was provided by first extending the Atlanta-Los Angeles route from Jackson, Miss. to New Orleans and to Memphis on June 14, 1931. The Chicago-St. Louis route was then extended from St. Louis to Memphis on July 20, 1931, completing the service between Chicago and New Orleans.

Service between Cheyenne and El Paso was provided by the extension of the Cheyenne-Pueblo route to Albuquerque, the extension of the Atlanta-Los Angeles route from El Paso to Albuquerque, and the subletting of the El Paso-Albuquerque extension to Western Air Express.

The consolidation of the New York-Atlanta and Atlanta-Miami routes was accompanied by the extension of the combined route from Richmond to Jacksonville, a distance of 581 miles. The consolidation of the Chicago-Atlanta and St. Louis-Omaha routes was followed three weeks later by an extension of the combined route from Kansas City to Denver, an extension which certainly had no "subordinate relationship" to the St. Louis-Omaha route. *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 1, 1932, p. 19.

The air transport systems as shaped by the route extensions which the Postmaster General succeeded in placing in effect may now be described. The air mail net as of October 1, 1933 is shown in the accompanying map. Both mail and passenger service were provided by the carriers on the routes shown. On that date these carriers numbered ten (without counting certain wholly owned subsidiary operating companies), and were as follows:

1. United Air Lines, Inc., a subsidiary of United Aircraft and Transport Corporation.
2. American Airways, Inc., a subsidiary of Aviation Corporation.
3. Transcontinental & Western Air, Inc., an indirect subsidiary of General Motors Corporation.[33]
4. Eastern Air Transport, an indirect subsidiary of General Motors Corporation.[34]
5. Western Air Express, an indirect subsidiary of General Motors Corporation.[35]
6. Northwest Airways.
7. Pennsylvania Air Lines, a subsidiary of Pittsburgh Aviation Industries.
8. National Parks Airways.
9. United States Airways.
10. Kohler Aviation Corporation.

[33] Stock ownership of Transcontinental and Western Air, Inc., is divided among three companies, two blocks of 47.5 per cent being held respectively by Western Air Express Corporation and Trancontinental Air Transport, Inc., and one block of 5 per cent being held by Pittsburgh Aviation Industries, Inc. Latest reports indicate that 51 per cent of Western Air Express Corporation and 26.7 per cent of Transcontinental Air Transport, Inc., are held by North American Aviation, Inc., which in turn is controlled by General Motors Corporation through ownership of 51 per cent of its stock. *Standard Corporation Records*, July 27, 1933, Vol. 11, p. 6609.

[34] Eastern Air Transport is a wholly owned subsidiary of North American Aviation, Inc., which is controlled as noted in the last footnote.

[35] Western Air Express, Inc., a wholly owned subsidiary of Western Air Express Corporation, which is controlled as indicated in note 33.

Air Mail Routes in the United States, October 1, 1933

The carriers are arranged approximately in the order of their importance as measured by their recent income from air mail. The air transport systems operated by each will be briefly described, noting the importance of air mail route extensions in each system.

1. *United Air Lines, Inc.* This is an intermediate holding company organized by United Aircraft and Transport Corporation to take over the control of all its transport activities. Control of the following air mail routes was acquired by the parent company during 1928, 1929, and 1930:[36]

New York-Chicago
Chicago-Salt Lake City-San Francisco
Chicago-Dallas
Salt Lake City-Seattle
Seattle-San Francisco-Los Angeles

The system resulting from the consolidation of these routes was well-knit from the first, and was little in need of extensions. Only two were made, Los Angeles-San Diego and Omaha-Watertown, South Dakota. The Omaha-Watertown extension was by far the less justified of the two extensions; the mail load averaged only 15 pounds during the first six months of 1932.[37] The extension appears to have been authorized entirely for political reasons, at the insistence of the Congressional delegation from South Dakota.[38]

The Omaha-Watertown extension is of special interest because it paralleled an existing passenger airline over the portion of the route between Omaha and Sioux City, Iowa. The passenger transport company would have been glad to extend its route to Watertown and to carry the mail. It had been seeking an air mail contract for some months before the extension was made and, after the extension was ordered, it tried to obtain the route as a sub-contractor. Finally, when the date of inauguration of service over the extension was announced, it ceased operation, on the ground that it could not hope to compete with a subsidized

[36] *Poor's Industrials*, 1931, pp. 2595-98.
[37] 72 Cong. H. rep. 2087, p. 39.
[38] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 1-4, 23, 1932, pp. 65, 67, 197.

competitor. A representative of the company appeared at a Congressional hearing to register bitter protest, and began his testimony with the following:

> Mr. Chairman and gentlemen of the committee, this is a case in which the Post Office Department has deliberately, intentionally, and knowingly destroyed an aerial transport company that has been in operation for a period of more than two years.[39]

Some conflict of testimony followed, but it appears that the Post Office Department either regarded the extension as too small a unit for economical operation, or did not approve of the operating methods of the existing airline, or both. The carrier receiving the extension was willing to sublet, but only at the request of the department. The department considered the advisability of a sub-contract, and the Superintendent of Air Mail Service made an inspection of the passenger airline, but an unfavorable decision was reached. It appears that the passenger carrier ceased operation not so much because of the actual competition along the part of its airline north of Omaha as because it had been operating at a loss and the extension ended its hopes of obtaining a mail contract.[40]

2. *American Airways, Inc.* This firm is an intermediate holding and operating company, organized by Aviation Corporation to take over and consolidate its transport properties.[41] Aviation Corporation acquired control of the following air mail routes during 1929:

Boston-New York
Albany-Buffalo-Cleveland
Cleveland-Cincinnati-Louisville
Chicago-Cincinnati
Chicago-Evansville-Atlanta, St. Louis-Evansville
Omaha-St. Louis
Chicago-St. Louis
Atlanta-New Orleans
New Orleans-Houston

[39] The same, p. 45.
[40] The same, pp. 45-54, 67, 173-75, 184, 197-98, 206-07.
[41] *Poor's Cumulative*, 1930, Vol. 1, p. 77; *Poor's Industrials*, 1931, p. 2259.

Dallas-Houston-Galveston
Dallas-San Antonio-Brownsville

This confused tangle of routes, mostly in the Mississippi Valley, was made somewhat more coherent by the addition of the southern transcontinental route between Atlanta, Dallas, El Paso, and Los Angeles in 1930.

Numerous extensions were received. The two eastern routes were linked by an extension from Albany to New York, which favored passenger and air mail transport between New York and the cities of the Mohawk Valley. A through service between Chicago and New Orleans was provided by way of St. Louis by a series of extensions. The traffic prospects of the southern transcontinental route were considerably improved by the extension of the Cleveland-Louisville route to connect with the southern route at Fort Worth, although the mileage over American Airways routes between either Cleveland or Columbus, Ohio (where overnight rail connections to New York City are available) and Los Angeles is almost 250 miles longer than by way of the shortest alternative air route. The southern transcontinental route was also extended from Fort Worth to Amarillo, Texas, where connection was made with the middle transcontinental route and with service to Denver and the northwest, but this extension was later discontinued.

In December 1932, Aviation Corporation obtained control of Transamerican Airlines, Inc.,[42] and its air mail route was added to the American Airways system. The route had originally consisted of a much-branched service between Chicago, South Bend, Indiana, and twelve Michigan cities, including Detroit. Prior to acquisition by American Airways, it had been extended from Detroit to Cleveland, and after the acquisition it was extended from Detroit to Buffalo. At the same time, a route extension was made between Albany and Boston, completing a direct service from Boston to Chicago by way of Albany, Buffalo, and Detroit.

The southern transcontinental route and the various extensions granted to American Airways have unified the scattered lines of this carrier and provided it with a semblance of a main

[42] *Standard Corporation Records*, Jan. 23, 1933, Vol. 11, p. 7487.

trunkline. Nevertheless, the route mileage added to this system was in the main of very questionable merit, because of the weakness of the system from a traffic standpoint. The attempt to build a third transcontinental air transport system was at best premature. Some of the original mileage of the system probably should have been abandoned and the rest divided between the two other transcontinental systems. Instead, a congeries of weak routes was retained and strengthened only a little by connecting links, many of which traversed notably thin traffic territory.

3. *Transcontinental & Western Air, Inc.* This corporation was organized to take over the mail and passenger operations of its parent companies along the New York-St. Louis-Los Angeles route, as noted in a previous section. It also took over passenger operations between Los Angeles and San Francisco, and later extended its passenger service from Columbus, Ohio to Chicago, but did not receive extensions of its air mail route to San Francisco and Chicago until early in 1933. The extension from Los Angeles to San Francisco paralleled part of an air mail route in the possession of United Air Lines, but provided alternative routes between San Francisco and the East, and thus was in keeping with the Postmaster General's desire for a group of balanced air transport systems.

4. *Eastern Air Transport.* This carrier originally operated the New York-Atlanta and Atlanta-Miami routes. The extension of the latter route from Daytona to Tampa and St. Petersburg was one of the longer extensions prior to the Watres Act. In April 1931, the two original routes were consolidated and extended along a direct route between Richmond and Jacksonville. This cut-off was probably designed to expedite traffic destined for the foreign air mail routes south of Miami. In the summer of 1931 the company received extensions to Atlantic City from New York, Philadelphia, and Washington, all of which were eventually discontinued. During the first six months of 1932 the New York-Atlantic City extension carried an average load of 1.6 pounds of mail.[43]

5. *Western Air Express.* This company obtained the Salt Lake City-Los Angeles and Cheyenne-Denver-Pueblo routes soon after the beginning of the contract air mail service. The

[43] 72 Cong. H. rep. 2087, p. 39.

Salt Lake City-Los Angeles route was extended to San Diego shortly after the approval of the Watres Act. The Cheyenne-Pueblo route was extended to Albuquerque, New Mexico, and Amarillo, Texas, in 1931, and Western Air Express also obtained the Albuquerque-El Paso link as a sub-contractor. These extensions traversed extremely thin traffic territory, and probably came into existence only because of the persistence of Western Air Express in maintaining passenger airlines on these routes. During the first six months of 1932 the mail load averaged 12 pounds between El Paso and Albuquerque, and 20 pounds between Pueblo and Amarillo.[44] These routes also had negligible passenger traffic, and their establishment appears to have been most unwise.

6. *Northwest Airways.* This carrier presented an example of the formation of a regional air transport system by the expansion of a single route, that from Chicago to Minneapolis and St. Paul. The route was extended from Milwaukee to Fond du Lac, Oshkosh, Appleton, and Green Bay in 1928, and from Chicago to Elgin, Rockford, Janesville-Beloit, and Madison early in 1930, two of the longest extensions prior to the Watres Act. After that, extensions were made to Pembina, North Dakota, a border town at which connection was made with a Canadian service to Winnipeg and western Canada; from St. Paul to Duluth; and from Fargo to Mandan, North Dakota. Early in 1933 the route was extended from Mandan to Billings, Montana, perhaps in preparation for further extensions to Seattle. Service was discontinued during 1933 on the extensions to Green Bay and Duluth, the Green Bay extension having averaged a mail load of 14.4 pounds during the first six months of 1932 and the Duluth extension one of 21.3.[45] The long series of extensions from Minneapolis west to Billings, Montana did not appear justified under recent conditions; during the first six months of 1932 the Fargo-Mandan section averaged a mail load of less than 11 pounds.[46]

7. *Pennsylvania Air Lines.* This company operated the Cleveland-Pittsburgh route, which had been extended to Washington.

[44] The same.
[45] The same, pp. 37, 39.
[46] The same, p. 39.

The extension was comparatively well justified, and served to make the original route long enough for economical operation.

8. National Parks Airways. This carrier operated the Salt Lake City-Great Falls, Montana route from the beginning. The route was never extended.

9. United States Airways. This company began a passenger airline between Kansas City and Denver in July 1929, but carried no mail until June 1931. At that time the consolidated Omaha-Kansas City-St. Louis-Chicago-Atlanta route was extended from Kansas City to Denver, and the extension was sublet to United States Airways. The consolidated route was on a certificate basis at the time of the extension and sub-contracting, and United States Airways therefore acquired all the rights and duties of other certificate holders. It received the entire compensation for the transportation of mail over the route.[47]

The route had little to recommend it from a postal standpoint; after some months of operation, the average load of air mail was less than 25 pounds.[48] Probably the bulk of the mail was moving over more roundabout airways which were lighted for night flying. The establishment of the route then seemed to be due to two factors, political pressure from Kansas City and Denver,[49] and a desire to help a struggling passenger service. Recent testimony indicates that it may have been due to a desire to reward the company for its behavior at the time the middle transcontinental route was awarded. The company was one of the units in the group presenting the low bid at the time, and did not fight the award to the high bidder.

10. Kohler Aviation Corporation. This company is similar to United States Airways in that it did not obtain its air mail route through competitive bidding. In 1929 it began an air passenger service across Lake Michigan between Milwaukee and Grand Rapids, which it later extended to Detroit. Early in 1933 the Chicago-Milwaukee-St. Paul air mail route of Northwest Air-

[47] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 180.

[48] Post Office Department, Air Mail Service, *Statistical Report,* February 1932.

[49] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 180.

ways was extended from Milwaukee to Detroit, and the extension was sub-let to Kohler Aviation Corporation, which thus became an air mail carrier.

This résumé of the allocation of extensions under the Watres Act should permit some assessment of the merits of the policies pursued. Two questions present themselves in a general consideration of the extensions from an economic standpoint. First, what are the merits of the extensions which actually were made? Second, could the same service have been rendered better or more cheaply through the award of contracts by competitive bidding?

Some of the extensions were relatively well justified, assuming that all of the original air mail routes were to remain in existence. Gaps in air mail service were bridged, and air transport systems were rounded out. On the other hand, a considerable number of the extensions reached into territory where traffic was so light that any reasonable proportion of self-support was far away in the indefinite future. These extensions were never justified by any economic criterion.

The use of competitively awarded contracts to inaugurate service on route extensions had little to recommend it. Contract operation of extensions held out a promise of a possible saving of cost during only the first two years of operation; and any saving was likely to find expression in inferior service. The administration of the service was made far less flexible in such matters as schedules, equipment used, and compensation paid. Finally, and most important, any attempt to build a well-rounded group of transportation units was likely to be defeated.

The question may also be raised as to whether the intent of Congress was followed or disregarded in

making route extensions. This question does not admit of any very certain answer. The power to extend received little debate during the hearings on the Watres bill, and none on the floor of either house of Congress. However, the Postmaster General clearly indicated that some of the contemplated extensions might be longer than the original routes, and that the power might be used rather sweepingly in the creation of air transport systems. No Congressman objected to this interpretation of the power.[50]

The use of the extension power to bring into existence a new air mail carrier through sub-letting an extension was certainly contrary to the intent of Congress. It amounted to the award of an air mail contract by negotiation, a power which Congress specifically denied the Postmaster General under the circumstances noted in the last chapter.

Again, the use of the extension power to the detriment of existing non-subsidized passenger airlines was certainly not within the intent of Congress. The Omaha-Watertown extension seems to have been the only important case in which this may have happened.

In conclusion of this section it may be said that the power to extend routes permitted the Postmaster General to plan the development of air transport systems in a useful way, but that the Postmaster General's planning was not always of the best.

IV. REGULATION OF SERVICE OVER ROUTES

The previous sections of this chapter have been devoted to the administrative activities under the Watres Act which influenced the development of air transport

[50] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, pp. 6, 27.

systems by the award of new air mail routes and the consolidation and extension of old ones. The remaining sections deal with the regulatory activities of the department in connection with the service, accounts, and compensation of air mail carriers.

Post Office Department regulation of the service rendered by air mail carriers is a difficult subject to discuss. The authority of the department was sweeping, but was used sparingly and very informally. Accordingly, much of the following discussion is of a tentative sort.

The statutory authority provided by the Watres Act was aimed at certificate holders, and required them to comply ". . . with all rules, regulations, and orders that may be issued by the Postmaster General for meeting the needs of the postal service and adjusting mail operations to the advances in the art of flying and passenger transportation. . . ."[51] "Willful neglect" of such regulations might be punished by the cancellation of certificates. The statutory authority was repeated in the route certificates, and was amplified by specific provisions permitting the Postmaster General to order mail service alone or with passenger service and by day or by night, to increase or decrease the service ordered, to alter schedules, and to determine the suitability of the design and capacity of aircraft in use.[52]

Air mail carriers were asked to provide passenger service almost immediately upon the approval of the Watres Act. An order issued May 5, 1930 requested them to install at least two passenger seats in mail airplanes operated by day.[53] From that time on the department

[51] 46 Stat. L., 259-60.

[52] For a typical route certificate, see 72 Cong. S. doc. 70, pp. 19-22.

[53] "Mail Plane Seat Ruling to be Enforced," *Aviation News*, July 19, 1930, p. 20.

favored the use of passenger equipment types for all day flying. The carriers were not pushed into passenger carrying before the routes were adequately equipped with aids to air navigation, but passenger service was soon offered on all air mail routes.

Service schedules were closely controlled as to timing, for obvious reasons. A functioning air mail service requires the smooth interlocking of schedules the country over, particularly for the night mail airplanes which move the bulk of the mail. More flexibility obtained in the case of day services, and some compromise occurred between the needs of the postal service and the needs of prospective passengers.

The control of service schedules as to number of trips daily was also within the province of the department. Mail trips could be authorized only by it, but the control of the number of passenger trips scheduled daily was of a negative sort. Combined mail and passenger schedules were authorized by the department but additional exclusively passenger schedules were provided at the option of the carriers. The policy of the department was to increase the frequency of service as rapidly as funds permitted, for two reasons. The postal service is improved somewhat by increased frequency of service. Letters start on their journey sooner, and are less dependent for fast service upon perfect connections at transfer points. Furthermore, interruptions of service because of bad weather and other delays become less important. The second reason related to the encouragement of passenger travel. It has been amply demonstrated that only frequent service can attract a substantial amount of passenger traffic on routes of moderate length between large centers. The frequency of schedules was therefore in-

creased in some cases beyond the point justified by purely postal considerations.

The Post Office Department was interested in the control of equipment used from three standpoints: speed, cost, and safety. Most of the transport companies purchased equipment during the transport boom in 1929, and after abandoning unprofitable passenger airlines in 1930, were in possession of more equipment than they could use. The carriers therefore had little occasion to purchase equipment until recently and the department permitted them to work off their old equipment, even though some of it was admittedly obsolete. The policy of the department in establishing several alternative routes between main centers resulted in service competition, with emphasis on speed, since the department would send the bulk of the mail over the route offering fastest service. The results of the policy were recently seen in the purchase of new equipment of exceptionally high speed for the transcontinental routes.

The department took no official position designed to enforce the purchase of low-cost equipment. Such matters could have been left to the business judgment of the carriers entirely, if several of them had not had affiliations with manufacturing companies.

The attitude of the department on matters connected with safety has been much more positive. Postmaster General Brown definitely expressed his unwillingness to approve the use of certain single-motor airplanes in which a high cruising speed was obtained at the cost of an excessively high landing speed.[54] The use of multimotored equipment was fostered for a time by offering

[54] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, pp. 193-94.

an extra allowance of 13 cents a mile in the compensation formula.[55] A similar incentive was offered for the installation of radio communication equipment in airplanes, to such good effect that the carriers all adopted both receiving and sending apparatus.

The relationship between the Post Office Department and the Department of Commerce in the field of safety regulation was of some importance. It has been the policy of the Post Office Department to build upon the safety regulations of the Department of Commerce, rather than in conflict with them. The Post Office Department published no general regulations on safety matters, maintained no field inspection force, and had no desire to carry on routine policing and inspection. On the other hand, it could and did make its influence felt in broad questions of policy where safety was a factor. It has encouraged air mail carriers to maintain the highest possible standards of safety, and to a considerable extent carried the added cost of maintaining these standards.

V. UNIFORM ACCOUNTING FOR CARRIERS[56]

Most of the activities so far discussed have their analogies in the practice of public utility commissions; the resemblance is only slightly obscured by the business relationship between the Post Office Department and the carriers. In the case of the prescription of uniform accounts and reports for the carriers, however, the activity goes beyond analogy. The activity was the same, it was carried on in the same manner, it involved a liberal use of the same precedents, and it was begun for the same

[55] *Report of the Postmaster General*, 1931, p. 126.

[56] Much of the information contained in this section was obtained from Mr. A. H. Gilbert, chief accountant, Division of Air Mail Service of the Post Office Department.

reason. The department was placed in a position of control over businesses affected with a public interest, and was required to set the rates of compensation for their most important class of traffic.

The performance was the more remarkable in view of the fact that the department never had a line of specific statutory authority for the imposition of uniform accounts. It had its general authority to prescribe rules and regulations; and it was in an invulnerable bargaining position at the time the route certificates were being written, with the result that the following appeared in all route certificates:

> The carrier shall keep and maintain an accurate system of accounting in accordance with regulations prescribed by the Postmaster General. These accounts shall include a record of all obligations, investments, expenditures, receipts, and earnings from any source whatsoever, and shall be subject at all reasonable times to inspection and audit by the Post Office Department. The carrier shall furnish to the Postmaster General such information regarding its accounts and operations as he may from time to time require.[57]

The origin of the system of uniform accounts has already been given some attention. The need for cost information obtained upon a uniform plan became obvious at the first conferences on rates of compensation, which took place in the spring of 1929. The first attempt to secure such information took the form of an elaborate questionnaire, prepared at short notice at the behest of the Postmaster General. Shortly after, a tentative plan of a system of uniform accounts was sent to the companies for criticism. This plan was revised and issued in a bulky mimeographed edition under date of June 30, 1929, for use in preparing reports covering the fiscal

[57] From a typical certificate. 72 Cong. S. doc. 70, p. 21.

year 1929. After further revision, the system was approved as of July 1, 1930, and its use was made mandatory as of that date.[58]

The influence of railroad accounting was obvious throughout the prescribed accounting system, but a thoroughgoing attempt was made to adapt the general framework of railroad accounting to air transportation. Transportation revenues were segregated into passenger, express, and mail; operating expenses were grouped as follows:

Maintenance of fields, structures, and equipment
Conducting transportation
Traffic and advertising
Miscellaneous operations
General and administrative

Railroad balance sheet accounting was followed even to the extent of keeping the unfortunate arrangement which impedes the computation of important ratios by placing both current assets and current liabilities in the middle of the statement.

Depreciation accounting has been required from the first, and was not objected to by the carriers, contrary to the railroad precedent. The department and the carriers reached an agreement on rates to be charged on the various classes of equipment, although no formal order covering rates was issued.

Monthly and annual reports were required of the carriers. Monthly reports of financial and operating statistics were required after January 1931, and on a larger scale after August 1931. They included a statement of operating revenues and expenses, with a breakdown of

[58] Post Office Department, *Uniform System of Accounts for Carriers by Air*, First Issue, 1931, p. v.

direct operating expenses by types of aircraft, and statistical information on items such as volume of traffic and percentage of capacity utilized. Annual reports were required at the end of each fiscal year, and were quite complete. They included not only accounting data; but also much statistical information designed to indicate the relative efficiency of the carriers.

A criticism of the system may be directed at the failure to develop a method of segregating operating expense on account of mail from other operating expense. The problem involved the allocation of expense common to several kinds of traffic, and was especially acute when mail and passengers were moved in the same airplanes. But it was not insuperable. Without such cost allocation, it was impossible for the department to know to what extent its payments exceeded the cost of moving the mail, or, in other words, to what extent it was contributing a subsidy to passenger transportation.

Two other criticisms may be directed at the way the uniform accounting requirements were administered, rather than at the requirements themselves. One glaring defect in administration was the lack of frequent, thorough audits of the accounts of the carriers. It happened that these accounts never were audited. Former postal officials have stated to the writer that they did not believe such audits sufficiently needed to justify their cost. The carriers were under an obvious temptation to engage in malpractices designed to swell the cost of operation. The fact that many of them carried on activities other than mail transportation made it especially easy to charge costs to mail service which were in reality incurred for other purposes. Even in the absence of dishonesty, misunderstandings leading to improper segregations of costs

might be expected to occur frequently in such a situation. The House Committee on the Post Office and Post Roads recommended in its recent report that thorough audits be conducted at least annually;[59] but postal officials seemed disposed to wait for new legislation before adopting the suggestion, although the authority contained in the route certificates was ample.

The other defect in administration was the complete lack of publicity of reports. The department took the position that the reports were confidential, and was very cautious even in the publication of totals and averages. It would seem that the fullest publicity should have been in order, since the industry was the recipient of such large amounts of public funds on a subsidy basis. The Post Office Department probably laid itself open to much more criticism through its obscurantist attitude than would have been warranted by the fullest publication of the facts.

The early requirement of a system of uniform accounts was one of the most progressive steps taken by the Post Office Department in the regulation of the air mail carriers. The system was designed in a workmanlike manner, and the carriers were given an opportunity for criticism before its use was made mandatory. It will undoubtedly remain in use by the carriers and will be improved as time goes on.

VI. COMPENSATION OF CARRIERS

The Post Office Department occupied a curious position in the determination of the compensation of air mail carriers. On the one hand, it was the judge of the fair compensation for the rendering of a service; on the other

[59] 72 Cong. H. rep. 2087, pp. 18-19.

hand, it was a party to the bargain, and paid the rate determined upon. This anomalous position was the result of power conferred by the Watres Act, which placed the compensation of air mail route certificate holders in the hands of the Postmaster General without qualification or restriction. The last Postmaster General referred to this duty in terms which indicated that he felt himself in a position analagous to that of a regulatory commission; he considered himself bound by the constitutional injunction against the taking of property without due process of law.[60] Whether the courts would have taken the same position is at least doubtful, in view of their disinclination to interfere with the business conduct of government departments.[61]

The Postmaster General originally drew a sharp distinction between mail service and passenger service, as was noted above. He expected to pay the entire cost of mail service, and to make a relatively small contribution to the support of passenger service, possibly from 15 to 30 cents per mile flown.[62] Mail was to be carried by the passenger airlines, but it was expected that the amount would be insignificant.

The distinction between compensation for mail service and payments in aid of passenger service was abandoned in practice. Air mail carriers were requested to provide passenger service on flights previously scheduled only for mail, and the transportation of substantial amounts of mail was authorized on flights previously de-

[60] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, Feb. 8, 1932, p. 288.

[61] *See* John Dickinson, *Administrative Justice and the Supremacy of Law*, pp. 297-301.

[62] *Amending Air Mail Act*, Hearings, House Committee on the Post Office and Post Roads, Feb. 19, 1930, pp. 14, 19.

voted only to passenger transportation. The mail and passenger services, which had largely been separate activities prior to the Watres Act, were thus combined into a joint mail and passenger service. The separate determination of the cost of mail service as distinguished from the cost of the joint service became difficult, and, as noted in the preceding section, was not attempted by the Post Office Department. The first rate formula covering the compensation of air mail carriers under the Watres Act was devised for general application, and made no distinction between payments for mail service alone and payments for mail service provided jointly with passenger service.

The first rate formula established under the Watres Act was in effect from May 1, 1930 to March 31, 1931. It is shown in the following table.[68]

	Cents per Mile
Mail Load Variable	
200 pounds, 12.5 cubic feet of space	55
400 pounds, 25.0 cubic feet of space	65
750 pounds, 47.0 cubic feet of space	75
1,000 pounds, 62.5 cubic feet of space	85
1,250 pounds, 78.0 cubic feet of space	90
1,600 pounds, 80.0-100.0 cubic feet of space	92.5
2,000 pounds, 125.0 cubic feet of space	95
Other Variables	
Night flying	15
Bad terrain	2
Fog	2.5
One-way radio equipment	3
Two-way radio equipment	6
Capacity for 2-5 passengers	1.5

[68] *Report of the Postmaster General*, 1931, p. 126.

Capacity for 6-9 passengers	3
Capacity for 10-19 passengers	4.5
Capacity for 20-29 passengers	6
Capacity for 30 or more passengers	7.5
Multi-motor equipment[84]	13

This rate formula represented an attempt to build a rate structure capable of application to any air mail route in the United States. It was thus a rejection of the direct determination of rates for particular routes upon the basis of the cost experience on the individual routes. Differences between routes and services were instead adjusted for by the so-called "variables." Bad terrain was held to justify an extra compensation of two cents per mile, and frequent fog two and a half cents more. Schedules requiring night flying were compensated for by the payment of an additional 15 cents per mile. Radio equipment and the use of multi-motor airplanes were favored by special allowances. Recognition was also given to the number of passenger seats provided, although the amounts allotted were relatively insignificant. If they had constituted the only aid to passenger service, the element of subsidy would not have been large. The real aid to passenger service was given indirectly, and resulted from the fact that under this formula almost the entire cost of flying the airplane was paid, whether space was reserved for 200 pounds of mail or 2,000. Thus, with two exceptions the variables were the same, regardless of the amount of mail carried. Even the load variable did not vary in proportion to variation in the amount of mail carried, 55 cents a mile being paid for 200 pounds, and 95 cents for 2,000.

The effect of the application of the rate formula in

[84] Allowed only in connection with mail loads in excess of 750 pounds.

the first instance was a radical realignment in the compensation of the carriers per mile flown. The previous spread in compensation per mile under the poundage method was greatly reduced: the routes with heavy traffic were paid less, and the routes with light traffic were paid more. From the standpoint of the Federal Treasury, the increases and decreases counterbalanced each other to a considerable extent, with the net difference on the side of economy. A study by the Post Office Department for the month of August 1930 indicated increases in carriers' compensation amounting to $196,620.15 per month, and decreases of $254,100.65 per month.[65]

The secondary effects of the new method of compensation were not in the direction of economy. Political pressure for route extensions at once became acute.[66] Both the carriers and the Post Office Department desired to increase the frequency of service on the existing routes, particularly by the addition of day passenger services. Moreover, the bonuses offered in the rate formula for radio equipment, passenger capacity, and multimotor airplanes began to prove effective, and the bonuses had to be paid. In consequence, although the 15 million dollars appropriated for 1931 equaled the amount appropriated for the year before,[67] the department was forced to request a deficiency appropriation of 3 million

[65] *Post Office Appropriation Bill*, 1932, Hearings, House Committee on Appropriations, Nov. 15, 1930, pp. 159-60.

[66] ". . . with the passage of the Watres Act a great many Congressmen and Senators came forward and made suggestions that the service should be expanded and that their parts of the country should be given either a new service or a more frequent service." The same, Nov. 18, 1930, p. 241. Testimony of Postmaster General Brown.

[67] Treasury Department, *Digest of Appropriations*, 1930, p. 406; 1931, pp. 470, 472.

dollars in the spring of 1931. The request was granted, but not without objection and warning.[68] An appropriation of 20 million dollars for the fiscal year 1932 was asked for similar reasons, and received.[69] At the time, the department was strictly warned against the incurring of deficiencies,[70] and the movement of economic affairs during the following year and a half served to reinforce the injunction. Changes in the rate formula accordingly were dictated largely by budgetary considerations.

The second rate formula was placed in effect on April 1, 1931. The mail load variable was scaled down from 55 cents to 50 cents per mile for 200 pounds, and from 95 cents to 80 cents per mile for 2,000 pounds, with similar reductions in the intermediate brackets.[71] No change was made in the other variables, except the reduction in the fog variable to 2 cents per mile. It is possible that the Postmaster General considered the original rates excessive, although the fear of an appropriation deficiency probably played some part in this first reduction. As it happened, only $16,943,605.56 was paid the carriers during the fiscal year 1931, and more than a million dollars of the 3 million dollar defficiency appropriation was unused.[72]

The compensation of the carriers was again reduced on October 1, 1931, but no change was made in the rate formula. The reduction took the form of shifting the space authorizations to the next lower bracket in cases

[68] *Second Deficiency Appropriation Bill*, 1931, Hearings, House Commitee on Appropriations, Feb. 11, 1931, pp. 549-60; Treasury Department, *Digest of Appropriations*, 1932, p. 400.

[69] The same.

[70] *Post Office Appropriation Bill*, 1932, Hearings, House Committee on Appropriations, Nov. 15, 1930, pp. 140-42.

[71] *Report of the Postmaster General*, 1931, p. 126.

[72] The same.

where the space had not been used to 50 per cent of the amount authorized. The changes were expected to save $700,000 during the remainder of the fiscal year 1932 and to avoid a deficit to that extent.[73]

A third rate formula was placed in effect on January 1, 1932. This formula was primarily the result of an attempt to cut the average compensation by about 10 per cent. The reduction was dictated by the fact that the carriers had been paid almost 11 million dollars during the first half of the fiscal year ending June 30, 1932, leaving only about 9 million dollars of the appropriation with which to complete the fiscal year. The form of the rate formula was somewhat changed, but the changes were of no great significance.[74]

Air mail postage rates were increased on July 6, 1932, and the increased rates led to some decline in the volume of mail. Nevertheless, it proved necessary to reduce the formula rates again on November 1, 1932, and to reduce the payments for June 1933, by 19 per cent in order to remain within the appropriation of $19,460,000. On July 1, 1933, however, it became necessary to reduce the formula rates by 25 per cent. The appropriation for the present fiscal year, which began on July 1, 1933, was only 15 million dollars compared with the $19,460,000 of the last fiscal year; and, as part of the general economy program of the present administration, the amount allocated to air mail service during the current fiscal year has been further reduced to 14 million dollars by the Bureau of the Budget.[75]

[73] "Second Rate Revision Under Watres Act," *Aviation*, November 1931, Vol. 30, p. 620.

[74] The second and third formulas may be found in *Report of the Postmaster General*, 1932, p. 119.

[75] Information from the Superintendent of Air Mail Service, and *Report of the Postmaster General*, 1933, p. 22.

The administrative activity in rate-making which has just been recounted should be assessed from two viewpoints. On the one hand, it determined the cost of air mail transportation to the Post Office Department. On the other, it determined to a large extent the financial experience of the air mail carriers. Both points of view were of importance in the actual rate-making process, as has already been noted.

The trend in the cost of air mail transportation to the Post Office Department since the Watres Act is indicated by the accompanying table.

COST TO DEPARTMENT OF AIR MAIL TRANSPORTATION, 1930–33
(Fiscal years ending June 30)

Item	Unit	1930	1931	1932	1933
Payments to carriers[a]	Thous. of dollars	14,618	16,944	19,938	19,400
Air mail service[a]	Thous. of miles	14,939	21,382	32,202	35,910
Average payment per mile of service	Cents	98	79	62	54
Estimated amount of mail[b]	Thous. of net lbs.	...[c]	3,845	3,544	2,685
Average payment per net pound of mail	Dollars	...[c]	4.41	5.63	7.23
Estimated ton miles of mail[b]	Thousands	...[c]	3,298	3,044	2,262
Average payment per ton mile of mail	Dollars	...[c]	5.14	6.55	8.37

[a] *Report of the Postmaster General*, 1930, p. 137; 1931, p. 125; 1932, p. 118; 1933, p. 103.
[b] Post Office Department, *Appendix to the Cost Ascertainment Report*, 1932, tables 3 and 5; 1933, tables 3 and 5.
[c] Data not available.

The changes in the rate formula provided a progressive reduction in the cost of air mail transportation to the Post Office Department, in terms of compensation per mile of service. However, the amount of service sched-

uled was rapidly increased despite the decline in the volume of air mail because of business depression in 1932 and higher postage rates in 1933, with the result that the payments for transportation in terms of net originating pounds of air mail have been substantially increased since the approval of the Watres Act. The same is true of compensation per ton mile of air mail traffic.

The effect of the changes in the rate formula upon the financial records of the carriers is not known with any certainty. Negotiations between carriers and the Post Office Department were conducted from the first in a cloud of secrecy. Almost no information about the financial condition of the carriers was released. The conferences on rates, of which there were many, were never open to the public. No record of the hearings is available, and the reasons for the actions determined upon have never been formally stated. However, Congressional interest in the payments to the carriers finally led to an investigation which furnishes a limited amount of information on the subject.

The general level of rates paid appears to have permitted the carriers as a group to earn some return on their investment. Operating profits of the carriers are said to have totaled $1,889,880.24 during the first nine months of 1931, and $772,061.72 during the first nine months of 1932.[76] Operating assets of the carriers were not reported and the rate of return therefore cannot be computed, but appears not to have been large.[77] How-

[76] 72 Cong. H. rep. 2087, p. 46.

[77] Total assets of the carriers as of June 30, 1932 were reported as $48,145,281.54, but this amount even if correct included large amounts of non-operating assets and did not take account of large reserves for accrued depreciation. The same, p. 46-47.

ever, the carriers may be considered to have fared rather well in view of Postmaster General Brown's frequent declaration that he did not intend to permit them to earn a profit while they remained on a subsidized basis.[78]

The profits obtained under the rate formula were not distributed uniformly among the carriers. Statistics compiled for the use of the House Committee on the Post Office and Post Roads indicate that during the first nine months of 1931, six of the ten air mail carriers then in operation obtained operating profits of $2,585,131.55, while the other four carriers operated at a loss of $695,251.31. During the first nine months of 1932, five carriers are said to have operated at a profit of $1,925,209.45, while five operated at a loss of $1,153,147.73. The larger part of the profits was obtained during both periods by United Air Lines, $1,853,842.39 during the first nine months of 1931, and $1,301,966.54 during the first nine months of 1932. American Airways, the second largest receiver of mail payments, is said to have operated at a loss of $203,055.20 during the first period and of $910,469.92 during the second.[79]

The results just noted were in part due to the nature of the rate formula, and in part to the way it was administered. If the formula had been rigidly applied, carriers with heavy loads of mail and frequent schedules

[78] For example, *Post Office Appropriation Bill*, 1932, Hearings, House Committee on Appropriations, Nov. 18, 1930, p. 246.

[79] 72 Cong. H. rep. 2087, p. 46. Accountants of air mail companies have indicated to the writer that these data are not accurate. They are included because it is believed that they represent a true picture of the general situation, if not the details, and because no accurate data are available. It is to be hoped that better data will soon be available through investigations of Congressional committees and the Federal Co-ordinator of Transportation.

would have found it much easier to earn profits under the formula than carriers with light loads and infrequent schedules. The formula was a compromise between a rule of thumb approximation of average costs of operation and a desire to penalize uneconomic services. It gave no direct influence to the revenue from passenger transportation, and thus could be of advantage to carriers in a position to develop passenger traffic rapidly. So far as the formula represented average costs of operation, inefficient carriers supposedly were penalized and efficient carriers were benefited.

In actual practice, the formula was not closely followed, adjustments in compensation being made through arbitrary allowances of variables and the purchase of more space than needed for air mail. So much flexibility was introduced that the carriers were said to feel that "The present air mail formula is a joke; the Post Office decides what it wants to pay you and then fits the formula to the pay, not the pay to the formula."[80] The Committee on the Post Office and Post Roads of the House of Representatives concluded after investigation that discrimination in rate-making was being practiced,[81] and certainly in many cases the rates paid had little relation either to the service rendered or the cost of operation.

The rate-making activities of the Post Office Department probably would have been conducted in a more creditable manner in the past if complete publicity had been insisted upon from the first. The financial reports of the carriers should have been open to the public at all times, and rates should have been determined as the result of open hearings. Public criticism probably would

[80] The same, p. 47.
[81] The same, p. 4.

have prevented the more glaring cases of discriminatory rate making, and might have led to methods of rate making more capable of producing equitable results than the application of an arbitrary rate formula.

The rate-making process was still in need of reform when the air mail contracts were cancelled. The procedure in rate making had not been changed, and a modified rate formula was still in use. In the future a new method of determining the compensation of the carriers should be adopted, one which will distinguish clearly between mail payments and passenger subsidies, and should follow sound principles in determining the amount of both. Such a method will be discussed in a later chapter.

VII. CONCLUSION

The record of administrative activities in regulation of air mail carriers from the approval of the Watres Act to the recent cancellation of contracts presents much that is worthy of high commendation. On the positive side, there is no denying that the Post Office Department worked in season and out for the development of a successful group of air transport systems in the United States. Without again tracing in detail the activities covered by this chapter, it may be said that it favored in every way at its command a more efficient organization of the carriers, a more attractive service for the public, and the maintenance of the highest standards of safety of which the art is now capable. A judicious use was made of precedents drawn from past experience, but the department continuously broke new ground when faced with new situations. The regulation was practical, informal, and cautious, but very effective. The department was supplied with such broad powers and was so immune to

review by the courts that it was able to suggest, where the more traditional type of tribunal would have been forced to order and then to fight. This is nowhere better illustrated than in activities which have so far received no mention because they fall outside the main categories discussed.

Four years ago the air transport services of the United States were almost as comprehensive as they are now, but were organized in an almost incredibly wasteful manner. Every conceivable duplication of facilities had taken place, as the result of an extraordinary aviation boom. As many as three carriers were competing along routes where one would have operated at a loss. The carriers were rapidly providing themselves with their own airports; terminals for the use of the same city were frequently ten miles or more apart. The exchange of traffic was excessively difficult in many cases. Separate ticket offices were maintained, frequently of an expensive and luxurious type justified only by the dreams of promoters. The carriers were only beginning to use radio for communication between airports and with aircraft; but the fight for the limited number of channels was well under way. Each carrier had its own methods of maintenance and operation, and mutual suspicion prevented much interchange of ideas.

This situation was by 1932 almost completely liquidated, and the last Postmaster General was responsible to a considerable extent. He once summarized his activities in this respect as follows:

> We got them to use union ticket offices and the same radio service, and got them to stagger their various activities so as not to compete unnecessarily in a number of planes. We got them all to use the same airport, where each had one. Each month we are getting them closer together. We have had them form an

association for the exchange of ideas. They have agreed on minimum safety requirements for flying and they are doing very well.[82]

It may be added that in the general realignment of air transport systems following the Watres Act, all air mail carriers discontinued any passenger airlines in their possession which paralleled the route of another air mail carrier, with one exception. Economic pressure would have forced these changes at some time, but pressure by the Postmaster General quickened the process very greatly.

The other side of the picture of regulation is less pleasant. Three major criticisms must be made. The first arises from the general combination of a willingness to make political concessions, a too great sympathy for the carriers, and a lack of economic sense. Under the last administration, at least, the department seemed never to have arrived at any definite conclusion as to the extent to which an air mail route or air transport service should be self-supporting in the existing state of the art. The result was an excessive amount of route duplication and of route extension into thin traffic territory. Pressure from the carriers and from politicians was resisted only feebly, if at all, and there was every reason to fear a large and permanent loss on air mail service. The department was notoriously open to all the political and commercial winds that blew. It was perhaps too much to expect it to resist pressure of this kind, but resistance would have been easier if it had had some kind of standard by which to judge proposed routes and services.

A second criticism lies with respect to the attitude of

[82] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, Feb. 8, 1932, p. 296.

the department towards the independent passenger carriers, of whom more will be said in a later chapter. Every member of the department was firmly convinced that the independents could not possibly survive, which may have been true. It does not follow that it was the duty of the department to put them out of business. In view of the conflict of testimony over the Western Air Service Corporation case,[88] it may be that the position of the department in the case was well taken; but the incident should never have been permitted to happen. Moreover, the department was much too incredulous in its reception of the statements by the independents concerning their ability to operate at low cost. Doubtless their statements were exaggerated, but they deserved a very careful investigation. The independent carriers had been forced to practice rigid thrift, and both the department and the air mail carriers could have learned from their experience.

The third criticism concerns the attitude of the Department in the award of the two transcontinental air mail routes in 1930. The circumstances surrounding the award of these routes, as revealed by the investigations of the Senate Committee, indicate a clear disregard of the principle of competitive bidding as required in the law. Competitive bidding was ostensibly followed, but resort was clearly had to extra-legal, if not illegal, measures to bring about the award of the contracts to certain favored companies. Such favoritism cannot be approved even though these companies may have been the best qualified to conduct the service over the routes in question.

The recent cancellation of the air mail contracts brought the regulatory activities of the Post Office De-

[88] The case involved the Watertown extension. See p. 127.

partment to an abrupt end. Although it now seems likely that the mail service will soon be restored to the private airlines, a temporary return to competitively awarded contracts for service appears to be inevitable. Under such contracts, the flexible administrative control of the industry which has formed the subject of this chapter will be lacking. Eventually the needs of the industry will force the re-establishment of flexible control, and when that time comes, many of the powers exercised over air mail carriers by the Post Office Department from 1930 to 1933 should be conferred upon the Interstate Commerce Commission, or some similarly constituted body. The experience recorded in this chapter clearly indicates that the Post Office Department is not the proper regulatory agency. Further attention will be given to this question in a later chapter.

CHAPTER VI

ANALYSIS OF THE DEFICIT

A large part of the apparent loss on air mail service in recent years was due to a hidden subsidy to passenger air transport. In this chapter an attempt is made to determine statistically the amount of the recent subsidy to passenger air transport. After eliminating this element from consideration, an attempt is also made to determine the extent to which the remaining payments to carriers were met by postal revenue. Various considerations which may justify air mail loss or passenger subsidy or both are then discussed, together with certain practical objections to a policy of subsidy.

Before beginning the analysis of subsidy, it seems well to summarize the financial history of the air mail service from the beginning of service by private carriers in 1926 to the end of the fiscal year 1933. This has been done in the table which is given on the next page.

The striking feature of this table is the increase in the payments to air mail carriers as compared with the far more moderate increase in estimated air mail postage revenue. The excess of payments to carriers over ail mail revenues, which represents most of the loss on air mail service, first became large when the air mail postage rate was reduced to 5 cents for the first ounce on August 1, 1928. The losses continued large during the fiscal year 1930 because the contracts covering the compensation of carriers under the original poundage rates were still in effect, and the compensation of the carriers therefore could not be reduced. At the end of the fiscal year 1930 and early in the fiscal year 1931 the compensation

of the carriers became flexible as contracts were changed from the poundage to the space method of compensation under the Watres Act, but, as appears from the table, no

AIR MAIL REVENUE, PAYMENTS TO CARRIERS, AND HANDLING EXPENSE, 1926–33

Fiscal Year Ending June 30	Estimated Revenue[a]	Payments to Carriers[b]	Excess of Payments over Revenues	*Revenue as a Percentage of Payments*	Handling Expense[c]
1926....	$ 118,407	$ 89,754	$ −28,653	*132*	...
1927....	1,500,000	1,363,228	−136,772	*110*	...
1928....	3,640,000	4,042,777	402,777	*90*	...
1929....	4,250,547	11,169,015	6,918,468	*38*	...
1930....	5,272,616	14,618,231	9,345,615	*36*	$ 550,547
1931....	6,210,345	16,943,606	10,733,261	*37*	649,804
1932....	6,016,280	19,938,123	13,921,843	*30*	3,833,245
1933....	6,116,442	19,400,265	13,283,823	*32*	3,633,591
	$33,124,637	$87,564,999	$54,440,362	*38*	...

[a] For 1926, *Annual Report of the Postmaster General*, 1928, p. 132; for 1927 and 1928, estimated by the writer on the basis of information in hearings before the House Committee on Appropriations on *Post Office Appropriation Bill*, 1929, p. 301; for 1929–33, Post Office Department, *Cost Ascertainment Reports*.

[b] *Annual Reports of the Postmaster General.*

[c] Computed from *Annual Reports of the Postmaster General* for the years given; not available for other years. The amounts given for 1930 and 1931 represent the cost of transporting mail to and from air mail fields and the cost of distribution in air mail transfer offices. The amounts given for 1932 and 1933 also include allocations of the cost of collecting, delivering, and handling air mail in city post offices.

improvement was realized until 1933. Decline in the excess in payments over revenues during the fiscal year 1933 was primarily due to the refusal of Congress to continue increasing the amount of the annual appropriation.

The limited data available on air mail handling expense are also given in the table. No attempt was made by the Post Office Department to estimate the cost of handling the air mail on the ground until the fiscal year

1930. For 1930 and 1931 the Cost Ascertainment Division of the Post Office Department prepared estimates of the cost of transporting mail between the airports and post offices, and of the cost of handling air mail at air mail transfer points. For the fiscal years 1932 and 1933 the division went further and prepared all-inclusive estimates of the cost of handling air mail on the ground, which included allocations even of parts of the cost of city collections, city deliveries, and handling in city post offices. The resulting estimates indicate that air mail has been far more expensive to handle than first-class mail, presumably because of the small volume and the special service given.

I. AIR MAIL PAYMENTS AS A FORM OF SUBSIDY

The total amount of air mail payments is frequently referred to as a subsidy to air transport. It seems clear that this usage is incorrect, since a substantial amount of service by way of mail transportation has been received at all times. Again, the net deficit on air mail service, or the difference between air mail postage revenue and air mail payments plus handling costs is frequently referred to as a subsidy to air transport. This view also appears to be untenable, because it assumes that the federal government would be unwilling to conduct a strictly mail service at a loss and consequently pays the excess over air mail revenues only to promote air transport in general and passenger transport in particular. As is well known, a number of mail services are regularly conducted at a loss, yet are not considered vehicles for subsidies. The payment of subsidies cannot be imputed unless some basis can be found for the belief that payments are larger than they would be if governed by strictly postal considerations.

A distinction may be made between the periods before and after the Watres Act of 1930. Prior to the Watres Act, the carriers were paid at rates determined by competitive bidding for air mail routes. The carriers were not required to provide passenger service, and there is no reason to believe that mail service over the respective routes could have been obtained at less cost at the time they were advertised. Under the Watres Act the carriers were given route certificates in exchange for their original contracts. Carriers receiving certificates agreed to provide passenger service with mail to the extent required by the Postmaster General, using equipment satisfactory to him; and rates of compensation became subject to the discretion of the Postmaster General. All air mail carriers eventually provided passenger service in air mail airplanes.

It is commonly believed that the compensation paid the carriers since the Watres Act has been in excess of the cost of carrying the mail plus a fair profit. The excess in payments, if any, has been in effect a subsidy to passenger transport, and it is believed that such has been the intention. The following statement was made in 1932 by the Second Assistant Postmaster General:

> The Postmaster General believed that Congress had indicated to him in a very positive way, by the passage of the McNary-Watres Act, that the carrying of air mail was not the only motive of the bill but that there was a very definite indication that there was placed in the Post Office Department the encouragement of commercial aviation in the carrying of passengers.
>
> . . . . . .
>
> I think we must decide if we want an air mail service in this country and if just an air mail service is desired I would ask Congress to appropriate 3 or 4 million dollars and then we would be ready to give this country just an air mail service

which would equal that of any air mail service in the world.

The air mail of this country could be carried at a rate a great deal less than it is being carried at the present time. Do not deny that air mail can be carried for a much smaller figure than the amount now spent but, if you want the air mail of this country carried in an open cockpit ship with a young lad 25 years of age sitting on a parachute, the only bit of human life at stake, then I say that it can be carried at a far less cost to the department than it is now being carried. However, if the Congress is desirous of having the air mail carried as a secondary item and a real invitation to the people of this country to fly in properly equipped ships which carry the air mail, then the air mail of this country can not be carried for much less than the rate at the present time.[1]

Numerous other similar statements by postal officials may be found in the records of Congressional hearings.

It does not conclusively follow that subsidies have been paid for the support of passenger transport, even if it is granted that such has been the intention of postal officials. The existence and amount of passenger subsidies can only be determined by a comparison of the actual payments since the Watres Act with the reasonable cost of air mail service plus a fair profit to the carriers. The "reasonable cost of air mail service plus a fair profit," however, is not easy of determination. It might be arrived at by a number of different methods, each worthy of some consideration and each leading to a different result.

One method would involve an attempt to determine the cost of operating a mail service comparable in extent to that recently furnished, but wholly separate and distinct from any passenger service. This method is implied in the statement of the postal official just quoted, in

[1] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 1-4, 23, 1932, pp. 4, 6-7.

which it is indicated that subsidy payments during the fiscal year 1932 might have amounted to as much as 16 million dollars. Payments during that year totaled $19,938,123, and the statement mentions "3 or 4 million dollars" as an amount on which an air mail service separate from passenger service could be operated, although not necessarily an air mail service as good as that actually furnished.

The method just proposed is open to serious question, because it involves the determination of the cost of a hypothetical service. Mail would be carried in airplanes designed for that purpose alone, at a cost which cannot now be determined, because the type is seldom constructed under present conditions and the progress of the art has turned in other directions. The frequency of service would be much less, probably in no case more than twice each way daily. Mail loads which have been divided among as many as six trips daily would be handled with fewer trips and on a quantity basis. The elaborate and expensive precautions taken for the protection of passengers would be omitted for the most part, and replaced by a more extensive use of parachutes as a protective measure.

Such a service would be adequate for postal needs, but it would be far from identical to the service recently furnished by the commercial airlines. High frequency service results in some improvement of postal service, even if not justified from that standpoint alone. Similarly, the protective measures for passengers increase the reliability of the postal service. What allowance should be made for such factors in comparing the cost of a hypothetical service with the payments actually made for a different service?

Difficulty arises when the situation is considered as it existed because mail, passenger, and other services were furnished in the same airplanes and through the use of the same facilities. This was not always the case, and perhaps a solution of the difficulty may be found by viewing the case historically. Many of the mail carrying lines were organized to carry passengers in the first instance. Later they obtained the privilege of carrying mail, and began service after making certain changes in their operations. Was the cost of mail service to these carriers the additional expense to which they were put because mail was added to the other classes of traffic which they handled? On the other hand, many of the mail carriers came into existence as such, later adding passenger service on their own initiative or at the suggestion of the Postmaster General. Was the cost of mail service to these carriers their entire cost of operation less the additional expense occasioned by the installation of passenger service? Such determinations could lead to striking differences in the cost of mail service, since in the one case mail service would be charged with none of the overhead and indirect expense, while in the other it would be charged with all of it.

Historical accident does not appear to justify singling out one class of service to carry the entire burden of indirect cost. Expenses not directly chargeable to the particular services should be considered common to all, and shared equitably among them.

Many factors should be considered in the allocation of costs between the services, depending in general upon the nature of the particular cost being allocated. Thus, the costs incident to the common use of buildings might be allocated on the basis of the amount of space used for

each service, or on the basis of the estimated rental value of the space used for each. In the case of the cost of weather reporting and communication with aircraft in flight, consideration should be given to the need for a high degree of reliability in mail service on the one hand and to the need for protecting the safety of passengers on the other, and the allocation should be made in accordance with the relative importance of weather information to the two classes of service. Aircraft operating expenses are by far the most important group of common costs, and it appears that these expenses should be allocated primarily on the basis of the relative weights of the various classes of traffic. Airplane capacities are definitely limited both as to space and weight, but it is believed that considerations of weight set the limit to actual loads more frequently than space. In many cases, when loads approach capacity, the loads are weighed into the airplanes; and to the extent that the capacity of the airplane is utilized for mail, passengers cannot be carried. In addition to weight, due regard should be given to other factors. The priority given mail service when capacity is limited may perhaps justify a greater assignment of cost than weight would indicate, if the priority given is not justified entirely by the steadiness of mail traffic and its availability at times when passengers do not care to ride. On the other hand, the expensive equipment and the large crews necessitated for passenger service would seem to justify the assignment of a share of cost to passenger traffic substantially greater than weight would indicate, unless the additional labor and capital costs are charged directly to passenger traffic.

The consideration of all of these factors in the allocation of costs between the services unfortunately was

not possible in this study. Recourse to the original accounting records and the application of a lengthy process of cost allocation would have been necessary. Accounting systems could be so organized that the information could be provided currently in the future, but to obtain it for the past would involve enormous labor, even if a private investigator could obtain access to the necessary records. The use of some approximate method of determining the cost of air mail service during the last three fiscal years has therefore been necessary.

The method of determining passenger subsidies which has been used involves the arbitrary allocation of the entire cost of operation between mail and passenger service on the basis of the weights of the respective classes of traffic. The results of the application of this method are shown for the last three fiscal years in the accompanying table. Mail pound miles and revenue passenger miles on air mail routes were obtained from the Post Office Department. Mail pound miles were turned into ton miles by dividing by two thousand. Passenger miles were turned into ton miles by dividing by ten, following the custom of the industry which commonly counts ten passengers and baggage to the ton. The assumption as to the average weight of passengers may be high, but it may be noted that most of the passengers are men, and also so far as present purposes are concerned that passengers require seats, although mail may simply be placed in a cargo hatch. The ton mile figures for mail and passengers were added to obtain total ton miles, disregarding other classes of traffic, which are negligible in amount. The total operating expense of the carriers was then obtained from the Post Office Department and adjusted by subtracting the expense of miscellaneous non-

scheduled operations, which the department also supplied, to obtain net operating expense. The expense of

DETERMINATION OF PASSENGER SUBSIDY ELEMENT IN AIR MAIL PAYMENTS FOR FISCAL YEARS 1931–33

Item	1931	1932	1933	Total
Mail ton miles[a]	3,398,785	3,137,968	2,417,796	8,954,549
Revenue passenger ton miles[b]	3,747,804	7,710,550	10,936,600	22,394,954
Total ton miles[c]	7,146,589	10,848,518	13,354,396	31,349,503
Net operating expense[d]	$18,534,025	$24,621,288	$23,861,596	$67,016,909
Expense of air mail transportation[e]	$8,814,438	$7,121,785	$4,320,111	$20,256,334
Estimated fair profit on handling mail[f]	$ 661,083	$ 534,134	$ 324,008	$ 1,519,225
Expense of mail transportation plus fair profit[g]	$ 9,475,521	$ 7,655,919	$ 4,644,119	$21,775,559
Air mail payments to carriers[h]	$16,943,606	$19,938,123	$19,400,265	$56,281,994
Estimated passenger subsidy[i]	$ 7,468,085	$12,282,204	$14,756,146	$34,506,435
Passenger subsidy per passenger mile[j]	19.9 cents	15.9 cents	13.5 cents	15.4 cents (average)

[a] From pound mile data furnished the writer by the Post Office Department.

[b] Passenger mile statistics supplied by the Post Office Department, divided by ten. Including scheduled exclusive passenger traffic on air mail routes.

[c] Other scheduled traffic is negligible in amount.

[d] Total operating expense (including general and administrative) as reported by the carriers, less total expense of conducting miscellaneous operations. Permission to use these data was given by the Second Assistant Postmaster General.

[e] Obtained by allocating a share of net operating expense to mail in the same ratio that weight of mail traffic bears to total weight of mail and passenger traffic. Computed by multiplying net operating expense by mail ton miles and dividing by total ton miles.

[f] Obtained by arbitrarily taking 7.5 per cent of the previous line, which is designed to approximate a return on depreciated operating assets of 10 per cent.

[g] Total of the preceding two items.

[h] From *Annual Reports of the Postmaster General.*

[i] Mail payments less apportioned expense of mail transportation and fair profit.

[j] Estimated passenger subsidy divided by ten times revenue passenger ton miles.

air mail transportation was then computed by allocating a share of net operating expense to air mail in such a way that it would have the same ratio to all expense that mail ton miles have to total ton miles. The result is an allocation of transportation expense to mail service on a weight basis. An estimate was then made of the fair profit on handling mail. The estimate was obtained by arbitrarily taking 7.5 per cent of the expense of air mail transportation, since it was found that over the last three fiscal years 7.5 per cent of operating expense would have approximated a return of 10 per cent on operating assets less accrued depreciation.[2] The estimated fair profit was then added to the estimated expense of air mail transportation to obtain an estimate of the fair compensation for mail transportation during the past three years.[3]

The excess of payments over fair compensation is found to have totaled $34,506,435, when the estimated fair compensation for mail service is compared with the actual payments to the carriers during the fiscal years

[2] In view of the youth and unsettled character of the industry, 10 per cent is perhaps not an adequate rate and a higher rate might be considered. The use of a rate as high as 20 per cent would not have seriously affected the conclusions noted below as to the extent of passenger subsidies.

[3] The payment of such rates would have resulted in operation at a loss in most if not all cases, assuming the existence of the same joint mail and passenger service, since the passenger services as a rule were not self-supporting. Whether the carriers would have provided the joint service in response to such payments cannot be stated, but it may be noted that their position with respect to passenger operations would have been no worse than that of the passenger lines which were unsuccessful in obtaining mail loads. The extent to which the government was obligated to make additional payments is not known, since no access has been had to any agreements between the carriers and the Postmaster General covering passenger service. In any case, if the basic assumptions as to cost allocation are accepted, any additional payments were not a part of the fair compensation for mail transportation. Whether the payments indicated would have supported an adequate mail service separate from passenger service is not known.

1931-1933. As indicated above, it is believed that any excess over fair compensation is in effect if not intentionally a subsidy to passenger transportation, and the amount just stated is therefore believed to represent the extent to which passenger transportation has been subsidized through mail payments. Accordingly, it will be referred to hereafter as the passenger subsidy element in mail payments.

The ratio of estimated passenger subsidies to fair compensation for mail service has grown rapidly during the past three years because of the increase in total payments in the face of a declining volume of air mail and an increasing volume of passenger traffic. The increase in the passenger traffic handled by the mail carriers has been so great, however, that the average subsidy per passenger mile has declined from 19.9 cents to 13.5 cents, or almost a third, although the total passenger subsidy nearly doubled over the same period. It may be noted that even in 1933 the subsidy per passenger mile was still more than twice the average passenger fare of approximately 6 cents per mile.

A comparison of estimated air mail postage revenue with air mail transportation expense plus a fair profit, is given in the following table for the fiscal years ending June 30:

Fiscal Year	Expense Plus Fair Profit[4]	Revenue[5]
1931	$9,475,521	$6,210,345
1932	7,655,919	6,016,280
1933	4,644,119	6,116,442
Total	$21,775,559	$18,343,067

[4] From the preceding table.
[5] From the first table of this section.

It may be noted that estimated air mail postage revenue last year exceeded for the first time the expense of air mail transportation plus a fair profit.

The conclusions of this section are tentative only, and are offered in large part as an illustration of an appropriate method of determining passenger subsidies. To say that these subsidies as computed on a cost allocation basis amounted to $34,506,435 in the course of three fiscal years does not mean at all that the same air mail service could have been provided if the subsidies had not been paid. On the other hand, it is equally true that the expenditure of $34,506,435 for passenger subsidies would not have meant the same passenger service which was received, if an additional $21,775,559 had not been paid to the same carriers as compensation for mail service. Under present traffic conditions, the two services can be furnished together more cheaply than they can be furnished separately; but each should be charged with its proper share of cost.

Even if the propriety of the method used is granted, it should be noted that further refinement in the application of the method is greatly to be desired if it is ever used in the administration of air mail service. Separate cost items should be allocated on the basis of their individual merits, rather than covered in a single blanket allocation. When this is done, the results will be more reliable, but in the meantime it is believed that the passenger subsidy estimate given above is conservative, and is less than that which would have been obtained by a more refined process of cost allocation. A number of accountants with air mail experience agree with the writer in this conclusion.

II. CAN A DEFICIT BE JUSTIFIED?

Special favors to particular industries have long been viewed by economists with some dislike. Such favors, whether protective tariffs, export bounties, subventions, or subsidies, as a rule tend to distribute the nation's productive resources in ways less satisfactory than might otherwise be achieved. Nevertheless, some exceptions may be made, and the question arises as to whether a deficit on air mail service may not be justified to some extent.

Brief attention may first be given to the military value of air transport. The military value of a flourishing air transport industry is undeniable, but this in itself does not prove the expediency of aid to air transport through the postal budget. It seems clear that the United States would lead in civil aviation even in the absence of all federal support. Our leadership in miscellaneous private flying activities is of many years' standing, and these activities have never been subsidized to a significant extent. In the scheduled air transport field, the non-subsidized passenger airlines without mail contracts were responsible for more passenger miles of actual traffic in 1931 than the combined total for Germany, France, and Great Britain,[6] and they probably can repeat the performance if the field is not again occupied by subsidized lines. On the military side, the United States was assigned third place among air powers two years ago, being considered inferior in strength to France and Great Britain.[7]

First place in civil aviation and third place in military aviation would seem a sufficient degree of strength, in view of our distance from other air powers. However, a

[6] Computed from *Aviation*, March 1932, Vol. 31, p. 137, and *Air Commerce Bulletin*, May 2, 1932, Vol. 3, pp. 532-35.

[7] *Aviation*, March 1932, Vol. 31, p. 134.

radical increase in our air strength may be dictated by the failure of disarmament programs, the state of world affairs, and the growing relative efficiency of the air arm. If so, the question of policy still remains with respect to expenditures in the civil budget for military reasons. If our military expenditures are to be properly controlled, they must be clearly set forth on their own merits. It follows that any aid extended to air transport for definite military reasons should not be hidden in the postal budget. If 5 or 10 or 20 millions are to be expended annually to increase the military strength resident in our airline equipment and personnel and the industry back of them, that 5 or 10 or 20 millions should be appropriated as part of one of our military budgets. It has no proper place in postal appropriations. The expenditures through the postal budget must be justified, if at all, on economic and social grounds. Further attention will therefore not be given to the military value of air mail service.

Temporary aid to air transport may be justified on economic grounds because it is believed that the industry will eventually be self-supporting. An industry may fail of self-support at first because cost is high and demand slight, even though there is every reason to hope that costs will at some time be much lower and demand much greater. As an industry, air transport has been especially beset by difficulties both of cost and demand. The bringing into use of a basic invention so novel as the airplane has proved to be a tedious and expensive process. Economic readjustments, new management techniques, many refinements of the basic invention have all been necessary. On the other hand, demand has been slow in development because the usual lag in the formation of

new buying habits has been increased by fear. Nevertheless, there is reason for hope.

Recent experience has shown a rapid trend towards lower cost. Seat mile costs[8] as high as 15 cents were common in 1929, and probably in no case fell below 10 cents. Among air mail carriers, seat mile costs of from 5 to 7.5 cents were recently common, and one non-mail carrier achieved a cost as low as 4 cents.[9] Seat mile costs of 3.5 cents seem within reach on many heavy traffic routes during the next five years. Utilization factors of from 60 to 70 per cent should also be possible on such routes. A unit cost of 5 cents per passenger mile is thus readily possible in the near future on the best routes.

The cost of operation is declining in air transport for two principal reasons. First, the limits of progress by way of invention, scientific research, and advance in design are far from having been reached; and second, even in the absence of such progress, cost would fall from mere increase in the size of the industry.

The opportunities of the airplane as a vehicle are constantly being widened by progress in design and manufacture. The fundamental characteristics of the airplane have undergone little change in some years, but the constant pressure for improved performance is bringing forth results which at times are startling. Four fields of research are of special importance: aerodynamics, engine design, structures and materials, and problems of air navigation. Much is still expected from research seeking to minimize the drag of each component part of the air-

[8] Seat mile cost is the cost of flying an airplane by the number of seats. It should be distinguished from passenger mile cost, the cost of flying an airplane divided by the number of passengers.

[9] Information obtained from the Ludington Line prior to its merger with Eastern Air Transport.

plane, and to reduce the drag resulting from aerodynamic interference between the parts. "Large drag reductions even for the most efficient existing airplanes still appear to be possible."[10] Important recent research findings of the National Advisory Committee for Aeronautics are rapidly being incorporated in the design of transport airplanes, and when added to the industry's own advances in engine and propeller design and manufacturing technique, account for the high efficiency of the airplanes now being purchased for airline equipment.

Better equipment and better airline management would bring lower cost even in the absence of growth in size; but growth itself can also bring economies. The most promising group of such economies centers around the elimination of unutilized capacity of various kinds. Some element of unused capacity is present in almost every cost incurred by the small airline, including costs for every kind of equipment and grade of personnel. These wastes are progressively reduced as the scale of operation increases. The waste caused by unused passenger space is glaring; many airlines have operated once each way daily with less than 30 per cent of the space utilized on the average. As the number of trips daily is increased, economy results from the larger number of flying hours per airplane. Cost reduction is rapid because of the capital investment in flying equipment, and because maintenance and depreciation bulk large in operating costs. When trips are scheduled at close intervals, the frequency of service can be adjusted to the volume of traffic, and the waste of unused capacity can be greatly reduced. When the traffic justifies only an infrequent service, perhaps once each way daily, 50 per

[10] *Annual Report of the National Advisory Committee for Aeronautics*, 1932, p. 56.

cent utilization is difficult to achieve, whereas on heavy traffic lines justifying hourly service, 70 per cent utilization is not impossible, even if an attempt is made to accommodate peak loads by flying additional sections. Finally, when traffic increases to the point where several airplanes are dispatched simultaneously on each flight, only the last will fly with a partial load. The small size of the airline traffic unit makes possible the close adjustment of capacity to traffic when the traffic is large, and air transport should eventually achieve utilization factors not possible to other forms of transportation.

Empty airplane seats are the most obvious form of unused capacity, but others are important. Airline operations could be greatly expanded without any corresponding increase in repair shop facilities, with little increase in passenger station facilities and airport personnel, and with no increase in the expensive weather reporting and radio communication systems of the airlines.

The prospects for increased demand for air transport service are as good as those for reduced rates. The growth in passenger traffic has been rapid, as indicated by the table on page 176.

A survey of the factors influencing the demand for air transport passenger service indicates that there is every reason to expect continued traffic growth, if an adequate amount of service is provided. It seems likely that well-managed airlines will soon be able to reduce the risk involved in air transportation to a point which will compare not unfavorably with the risk in individual passenger automobiles. The airlines of the United States averaged 5,862,103 passenger miles during the year 1932 for each passenger fatality,[11] which may be com-

[11] *Air Commerce Bulletin*, May 1, 1933, Vol. 4, p. 530.

pared with the figure of 20,840,000 passenger miles to the passenger fatality in ordinary passenger automobile transportation.[12] The largest air mail carrier averaged 17,225,921 revenue passenger miles to the revenue passenger fatality during 1931 and 1932,[13] but did not do as well as in 1933.

UNITED STATES DOMESTIC AIR TRANSPORT PASSENGER TRAFFIC[a]

Calendar Year	Number of Passengers	Passenger Miles	Average Fare per Mile	Estimated Passenger Revenues
1926.....	5,782	1,445,500	$0.12	$ 175,000
1927.....	8,679	2,169,750	0.106	230,000
1928.....	48,312	12,078,000	0.11	1,300,000
1929.....	163,114	40,778,500	0.12	4,850,000
1930.....	374,935	84,015,572	0.083	6,950,000
1931.....	469,981	106,442,375	0.0674	7,150,000
1932.....	474,279	127,038,798	0.062	7,900,000
1933.....	493,141	173,492,119	0.061	10,500,000

[a] Passenger miles through 1929 were estimated on the basis of an average of 250 miles per trip. The other data for passenger miles and all data on number of passengers were compiled from issues of *Air Commerce Bulletin*. Average fares for 1926–31 are from the same, May 16, 1932, Vol. 3, p. 559; for 1932–33 were obtained from the Department of Commerce. In all cases the figures have been adjusted to eliminate traffic on American owned foreign lines.

As for the factors other than safety which influence demand, cruising speeds of 150 miles per hour or better are rapidly become typical, while the reliability, comfort, and convenience of air travel steadily improve.[14]

Tangible reasons thus exist for the hope that a large part of the air transport industry can soon be placed upon a self-supporting basis. In so far as subsidies may be necessary to bridge the gap until that time arrives, they

[12] Estimate for 1929. *Transactions of the Actuarial Society of America*, May 1931, Vol. 32, p. 253.

[13] Information obtained from the company.

[14] For a more complete discussion of the factors influencing the competitive position of air transport, see Harold G. Moulton and Associates, *The American Transportation Problem*, pp. 725-33.

may be justified, if their very existence does not prevent the gap from being bridged. However, some attention may be given to certain objections which are raised even against temporary subsidies.

A common objection to subsidies results from the belief that they lead to the production of facilities before they are needed, or facilities which may never be needed at all. This position is put forward on the ground that if the facilities had been needed at the time in question, no subsidy would have been necessary to bring about their production. The objection overlooks the fact that most "needs" are mere habits of consumption. It may be necessary to create the equipment for the gratification of the "need" before it will come into existence. However, in the present case there is not much doubt that a considerable amount of duplication of routes took place prematurely, and that routes which will not soon be justified were established in thin traffic territory.

Another common objection to subsidies is the charge that executives of subsidized industries almost invariably put more time and thought into their political than their economic activities. This state of affairs can hardly be avoided, however, as long as the Post Office Department remains the major customer of the transport companies. Bargaining and lobbying would still continue, even though the service were conducted without loss.

Objections to subsidies in the present case have usually grown out of the fact that not all the existing air carriers have been aided. The continuous existence of a group of unaided passenger airlines almost from the beginning of passenger transport in the United States has led to two charges, one that the Post Office Department has promoted unfair competition through its payment of

subsidies, the other that subsidies have permitted the continuance of inefficient, high-cost operation. The charge of unfair competition will be considered at length in the next chapter; the charge of high-cost operation may be given attention here.

A real difference in the cost of operation undoubtedly existed between the recent air mail carriers as a class and passenger airlines which were not subsidized. Most of this difference in cost resulted simply from the differing histories of the two groups, and reflected no discredit on either.

The air mail carriers were forced to maintain a higher standard of operation than the non-mail carriers. A high percentage of performance and of on-time operation had to be provided. Higher costs were in other respects the result of deliberate policies on the part of the Post Office Department, notably in its encouragement of two-way radio equipment for aircraft, and in the request that air mail carriers provide comfort facilities in their passenger airplanes. The added equipment not only was expensive in itself, but reduced pay load capacity very materially. Other costs were incurred by air mail carriers at their own volition in an attempt to improve their service. Most air mail carriers supplemented the weather information collecting service of the government, and many provided additional emergency landing fields along their routes. Almost all incurred some airway development expense at the beginning of their activities, particularly in the development of new routes across sparsely settled areas; and such costs were retained in the rate base, even though they did not affect current operating costs.

Another group of differential costs arose mainly from the fact that air mail carriers as a class were much older

than the non-subsidized airlines. This fact explained a considerable element of higher labor cost. Many of the employees of air mail carriers were hired during a period of scarcity of trained aeronautical personnel. Wages and salaries were later cut, but remained very much higher than those paid by the non-subsidized carriers even for equivalent work, since those carriers were able to take advantage of a much deflated labor market.

A substantial difference in cost would have been inevitable under the circumstances just outlined. In view of the fragmentary evidence on the cost of operation by either class and the multitudinous adjustments which would be necessary before any comparison could be made, any definite conclusion as to the relative efficiency of the two groups is impossible. At most, the opinion might be hazarded that the non-subsidized airlines were more efficient in the pursuit of low cost, while the air mail carriers were more efficient in achieving safety.

The question may be raised as to why subsidies are needed at all if a group of non-subsidized airlines continues to exist. Several answers are possible. Non-subsidized airlines do not and could not exist on most of the mileage traversed by air mail routes. A higher standard of safety in operation than that being currently set by most of the non-subsidized lines is easily possible and certainly desirable.[15] Finally, in spite of their low cost of operation, the non-subsidized lines have almost invariably operated at a loss. In consequence, although the group persists, the membership changes constantly. The social waste attendant upon liquidations and bankruptcies

[15] During the fiscal year ended June 30, 1932 air mail carriers averaged 6,307,892 passenger miles to the passenger fatality, compared with 2,110,128 averaged by the non-mail carriers. Moulton and Associates, *The American Transportation Problem*, p. 731.

may be as great as the subsidies which could prevent them. In any event, progress will probably be more rapid if some of the carriers, at least, are in a position to carry on development projects without too much fear of the future.

To sum up the preceding discussion, it appears that some temporary loss on air mail service may be justified by the necessity of winning past a development period in which costs are high and traffic light, and it does not appear that past subsidies have led to excessively inefficient operation.

The conclusions which have been reached do not lend themselves to translation into any very definite quantitative answer to the question with which this section started, the extent to which a deficit on air mail service may be justified. It does seem most unfortunate that any part of the service was permitted to come into existence on a basis which did not insure continued self-support to at least 50 per cent. Instead, the contract air mail service started self-supporting, became progressively less so until it was about a third self-supporting, and remained at that level throughout four years. The turning point was reached on July 1, 1932, when a reduced air mail appropriation became effective for the first time, and continued progress should be observed if Congress retains its present rigorous attitude towards air mail appropriations.

CHAPTER VII

POLITICAL PRESSURE FOR CHANGE

The air mail service affords one of the most interesting illustrations of what is involved in changing the conditions of competition through resort to political action. Political action has been felt to be necessary by four distinct economic groups: the business men resident at points not receiving air mail service; the independent air transport operators with no mail contracts; the employees of air mail carriers; and the air mail carriers themselves. The political activities of these groups during the years 1931 and 1932 form the basis of this chapter.

I. POLITICAL PRESSURE FOR ADDITIONAL SERVICE

Political pressure for service to additional points and for more or better service to the same points has existed throughout the history of the air mail service. The location of the original transcontinental route was not determined in 1919 without an attempt by the Congressional delegations from the Southern states to obtain a transcontinental route approximating the existing route between New York and Los Angeles by way of Atlanta.[1]

Again, the much branched Transamerican Airlines route in lower Michigan, which a Second Assistant Postmaster General once described as "more of a rural car-

[1] *Cong. Record,* Mar. 27, 29, 1920, Vol. 59, pp. 4912-14, 4952-62. Their argument seemed more plausible then than it would now, for most of the flying fields were in the South, and the route between Omaha and San Francisco had seldom been attempted before its use by the Post Office Department.

rier service than any other,"[2] came into existence with the enthusiastic support of the entire Michigan delegation in Congress.[3] The route provided an air mail stop for almost every Congressional district in Michigan. Similar circumstances explained the Omaha-Watertown extension. The entire South Dakota delegation insisted upon it, because the State of South Dakota had previously obtained not a single air mail stop.[4] A similar story could be told for every air mail route in the country, the only distinction between routes being that some routes are so well justified by the economic facts of their situation that the Post Office Department could have been trusted to install them without any urging.

Much of the political log-rolling incident to the past development of the air mail net can only be surmised. After 1930 the pressure for service became much more open. As part of an economy program, the air mail appropriation of 20 million dollars for the fiscal year ended June 30, 1932 was reduced by the Bureau of the Budget to 19 million dollars for the fiscal year 1933. The Postmaster General insisted that no new services could be authorized under the reduced appropriation,[5] with the result that the fight for new services was transferred from the offices of the Post Office Department to the halls of Congress. The Committee on Appropriations of both the House and the Senate was forced to

[2] *Post Office Appropriation Bill*, 1929, Hearings, House Committee on Appropriations, Jan. 11, 1928, p. 299.

[3] The same.

[4] "That line was put in on the insistence of Mr. Chistopherson and the remainder of the South Dakota delegation in Congress and Senator Norbeck. They all insisted that the line be established." *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 197. Testimony of Postmaster General Brown.

[5] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, Feb. 8, 1932, pp. 286-99.

listen to numerous appeals during the first session of the Seventy-second Congress, and the air mail appropriation was debated at length on the floors of both houses.

A few sample cases will indicate the nature of the services sought. Probably the soundest proposed route was an extension to Norfolk, Virginia, from either Washington or Richmond, which a Virginia Congressman sought from the House Committee on Appropriations.[6] This route seems to have been delayed by various fortuitous circumstances. A Congressman from Georgia appeared to appeal for certain lateral services across the State of Georgia from Atlanta to the coast. In his enthusiasm, he named the following cities which he considered deserving of service:

> There are Waycross, Dublin, Thomasville, Albany, Augusta, Athens, Gainesville, Rome, Carrollton, Cedartown, Newman, La Grange, West Point, Griffin, Thomaston, Covington, McDonough, Jackson, and many other important points in Georgia which should be connected up.[7]

Two representatives from Virginia and one from Tennessee appeared to sponsor

> . . . an airway between Washington and Chattanooga, Tenn., by way of Charlottesville, Lynchburg, Roanoke, Bristol, Johnson City, and Knoxville. At the present time there is an area of 168,000 square miles, with 2 million people in it, thickly populated, without proper air routes.[8]

One Congressman from South Carolina asked an increase in the appropriation in order to permit the Post Office Department to add night service over the Richmond-Jacksonville cut-off on the New York-Miami route.[9]

[6] The same, pp. 405-09.
[7] The same, p. 410.
[8] The same; p. 415.
[9] The same, pp. 419-26.

Similar episodes took place at the hearings in 1932 before the Senate Committee on Appropriations. The geographical districts from which appeals came were, however, somewhat different. The Senate Committee was principally concerned with the proposed route between the Twin Cities and Puget Sound, most of the senators and representatives from the northern tier of states appearing in person to advocate the route.[10] However, some mention was made of the discontinuance of night service between Salt Lake City and Los Angeles, an action which seems not to have met the approval of Senator Reed Smoot of Utah, even after the Postmaster General explained that Los Angeles was instead receiving night service to the East by way of Kansas City.[11] The controversy led to the restoration of night service between Los Angeles and Salt Lake City, a decision which became the subject of caustic comment a few months later by members of the House Committee on Appropriations.[12]

Three points stand out from the testimony in connection with these proposed routes. In the first place, the demand for air mail service from the sparsely settled regions of the country was intense. Most of the correspondence of these regions is with cities at a considerable distance; reference was frequently made to the inadequacy of existing surface transport facilities, particularly if railroad services had been discontinued. The people of these regions appreciate air mail service at least

[10] *Treasury and Post Office Department Appropriation Bill*, 1933, Hearings, Senate Committee on Appropriations, Mar. 17, 1932, pp. 160-84.

[11] The same, pp. 148, 155, 1160-61.

[12] *Post Office Appropriation Bill*, 1934, Hearings, House Committee on Appropriations, Nov. 16, 18, 1932, pp. 19-21, 157-60.

enough to make strenuous political attempts to obtain it.

A second common assertion was that of a right to receive service regardless of cost. It was argued that since some areas of the United States received service, failure to provide it for all was a form of discrimination. Varying degrees of concession were made to the idea that the service should not be provided if it would entail a direct loss to the Post Office Department. All knew that the service as a whole operated at a loss, and was therefore supported to some extent by taxation. They felt that if any part of the country was to receive service at public expense, they also were entitled to service.

A third outstanding characteristic of the testimony was a complete lack of comprehension of the negligible extent to which the light traffic routes were self-supporting. This was nowhere brought out more clearly than in a communication received by the Post Office Department from the Chamber of Commerce of Casper, Wyoming, relative to the establishment of a proposed air mail route between Cheyenne, Wyoming, and Billings, Montana, with stops at Casper and Sheridan. It was stated that:

> We do not know whether or not the air mail contract between Great Falls, Mont., and Salt Lake City has involved loss to your department. We are of the opinion that from the viewpoint of numbers only, population to be served by the Billings and Cheyenne line will compare favorably with that served under the Great Falls-Salt Lake contract.[18]

From a traffic standpoint, the route between Great Falls, Montana, and Salt Lake City was by far the least justi-

[18] The same, 1933, Hearings, House Committee on Appropriations, Feb. 5, 1933, p. 403

fied air mail route in the country, at least among those routes originally awarded by competitive bidding.

Lack of available information on the distribution of air mail loss by routes was one of the principal reasons for this last misapprehension. The Post Office Department was directly responsible for the lack of information; it seems never to have made such a study even for its own information. A direct request for information as to the relative merits of the various routes by Senator Dickinson was met by former Postmaster General Brown with the statement that no answer was possible; when pressed, he stated an opinion to the effect that the New York-Chicago route had paid its way.[14] As it happened, the route was not then self-supporting because of high frequency of service, diversion of traffic to alternative routes, and aid to passenger transport. Pound mile statistics and pound mile costs by routes were made public by the department for the first time when such statistics for January 1932 were furnished for the record of a Congressional hearing, at the request of Congressman Clyde Kelly.[15]

Appropriation hearings on the 1934 budget were somewhat different from those on the 1933. The need for economy in government was felt more keenly, and subsidy payments to air transport and the merchant marine were considered an especially appropriate field for economy. An attack was made upon the air mail service which eventually led to the complete elimination of the air mail appropriation from the postal ap-

[14] *Treasury and Post Office Departments Appropriation Bill*, 1933, Hearings, Senate Committee on Appropriations, Mar. 17, 1932, pp. 179-80.

[15] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 185.

propriations as they passed the Senate. The appropriation was restored in conference, but only in the amount of 15 million dollars, whereas the 1933 appropriation had been for $19,460,000.

Notwithstanding the dangers besetting the air mail service, a determined attempt to secure extensions of service in the Northwest was led by Senators Walsh and Nye. After an extended grilling at the hands of the two senators during the appropriation hearings, Postmaster General Brown definitely promised to authorize service west from Bismarck, North Dakota, before leaving the department.[16] He kept the promise early in 1933.

A permanent and increasing deficit on air mail service will result if recent policies with respect to the extension of air mail routes are resumed upon the return of any degree of prosperity. New routes were continually being sought and obtained because they presented prospects not much worse than the worst routes then in service. Standards were gradually lowered. Even if the existing standards could have been retained, several thousand miles of route could have been added without including any route more barren of traffic prospects than the route between El Paso and Albuquerque, or the route between Fargo and Mandan. As Congressman Wood said to another Congressman who wanted an air mail route:

> It will not be five years before every hamlet in this country will be supplied with air mail. Just three or four years ago we commenced with an appropriation of 3 million dollars, and it has climbed up to 20 million dollars this last year, and it could

[16] *Treasury and Post Office Departments Appropriation Bill*, 1934, Hearings, Senate Committee on Appropriations, Dec. 20, 1932, p. 48.

have gone still higher this year if we had not struck the snag that we have.

So let not your heart be troubled. You will have air mail so thick you will not be able to find the air.[17]

II. POLITICAL PRESSURE FOR THE RIGHT TO CARRY AIR MAIL

The United States has been almost unique for several years in the possession of a group of non-subsidized scheduled air transport lines. These lines carry no mail and receive no mail payments. They even make little use of the indirect subsidies contributed by the Department of Commerce through its airway aids, since they fly little at night and have been slow to adopt the radio facilities which would permit them to use radio beacons and weather broadcasts.

The non-subsidized lines were responsible for 30 per cent or more of the miles flown in air transport from the spring of 1929 through the end of 1931.[18] Since then the non-subsidized lines have lost ground. In October 1933 they were responsible for only 9.14 per cent of the airplane miles scheduled daily.[19]

Although the non-subsidized lines have been a characteristic feature of American aviation since 1928, the membership of the group has constantly shifted. Information compiled by the writer for the use of the National Transportation Committee indicated that of the 77 non-mail passenger airlines started during the years 1925-32, lines to the number of 29 stopped, merged, or became air mail carriers during the year of their origin, 18 during the following year, and 10 the third

[17] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on the Post Office and Post Roads, Feb. 9, 1932, p. 418.

[18] See chart in *Aviation*, March 1932, Vol. 31, p. 102.

[19] Computed from data in *Air Commerce Bulletin*, Oct. 15, 1933, Vol. 5, pp. 123-25.

year. Of the 77 carriers, only 17 were still operating on January 1, 1933, and of these, only 2 had operated more than three years.[20] The reasons for the transitory existence of the non-mail airlines may be indicated by a short sketch of their development, before turning to their political activities.

Two short cycles of passenger airline development since 1928 may be discerned. The first lasted from 1928 to 1930. The boom phase of the cycle was marked by the establishment of Maddux Air Lines, Transcontinental Air Transport, Standard Air Lines, Stout Air Services, West Coast Air Transport, Southwest Air Fast Express, the various passenger services of Universal Aviation Corporation, and many smaller airlines. These companies came into existence with glowing hopes of profit from passenger transport, hopes which could only have been realized by a substantial volume of traffic at passengers fares of 12 to 15 cents per mile, in view of the high-cost equipment then in use. The hopes failed of realization, and the companies named were merged with air mail carriers in various ways during 1929 and 1930. Many smaller companies were liquidated by their proprietors or creditors.

The second passenger airline cycle may be said to have begun in the fall of 1930 with the establishment of the Ludington Line between New York and Washington. This venture was marked by both new equipment and new ideas. The equipment consisted of ten passenger Stinson tri-motors, newly placed on the market at a price approximately half of that at which other tri-motor equipment of similar capacity was then selling.

[20] Harold G. Moulton and Associates, *The American Transportation Problem*, p. 721.

The principal new idea was that of offering a frequent service on a short route of great traffic density, at passenger fares only slightly above the standard rail-plus-pullman fare. Intensive use of equipment was planned and achieved, as well as many other operating economies, with the result that it proved possible to operate ten passenger airplanes at an average cost of about 40 cents a mile, a previously unheard of figure. Moreover, the hourly service each way proved its utility by attracting passenger traffic; the line ended its first year with an average of 64.5 per cent utilization of capacity, a high average for any form of transportation.[21] A short calculation shows a passenger mile cost of about 6 cents a mile, and indicates the reason why the line almost earned a profit its first year. Declining traffic later led to operation at a considerable loss.

The favorable early experience of the Ludington Line led to the establishment of services on the same pattern by Century Airlines, Inc. and Century-Pacific Airlines, Ltd. These companies were subsidiaries of the Cord Corporation, which also controlled the Stinson Aircraft Corporation. Services were started in the Chicago area and on the Pacific Coast with the dual purpose of exploiting the frequent service, low-rate idea and of building up a controlled market for equipment.

Other airlines were started during 1930 because of the availability of low-cost equipment in the form of high-speed single-motor airplanes. The higher speed resulted from the absence of the parasite resistance from outboard motors, from a general improvement in stream-lining, and to some extent from a change in aerodynamic characteristics which also increased landing speed, and to that extent increased the hazard of flying.

[21] Information obtained from the company.

The increased speed was obtained without much, if any, increase in the hourly cost of operation and therefore led to a substantial decrease in the cost of operation per mile.

The airlines established in 1930 and 1931 were started on a sounder basis than those of 1928 and 1929, yet were unsuccessful. If the general drift of economic affairs had been more favorable, the lines with the best management and the most favorable routes might now be operating at a profit. Instead, conditions have been unfavorable to growth in passenger traffic, surface transport media have been cutting rates, and the air mail carriers were stimulated to compete more aggressively for passenger traffic because of policies sponsored by the Postmaster General.

The new carriers turned to the Post Office Department after passenger traffic had again proved a barren source of profit. They received no cordial reception. The Postmaster General had saved one group of ill-fated enterprises, and felt disinclined to continue such salvage operations. He was attempting to build up a group of national air transport systems, and could find no place for a group of small disconnected airlines. Finally, he regarded their methods of operation with undisguised suspicion.

The hopes of the passenger carriers received a final rude shock in the summer of 1931. The group of air mail route extensions authorized just before July 1, 1931 brought to them the realization that no further public advertising of routes lay within the intention of the Postmaster General. The outcry was immediate and bitter,[22] and was the beginning of an attack upon the

[22] "Independent Operators Register a Protest," *Aviation*, September 1931, Vol. 30, p. 508.

air mail policies of the Postmaster General which continued up to the recent cancellation of air mail contracts. The controversy was especially bitter in 1932, and had largely died away when it was revived by the recent Senate disclosures.

The attack upon the Post Office Department charged maladministration upon four counts:

1. The legality of the contracts for the two transcontinental routes awarded in 1930 was challenged.

2. The policy of extending existing air mail routes rather than opening the new services to competitive bidding was attacked as contrary to the intent of Congress, as illegal, and as an unfair denial of opportunity to the new air transport companies.

3. It was charged that the department had fostered unfair competition by extending air mail routes into territory pioneered by passenger transport companies and by subsidizing new passenger services over air mail routes after passenger transport companies had established passenger services over the routes.

4. In general, it was charged that payments to air mail carriers were excessive, and conducive to inefficient, high-cost operation by the existing air mail carriers.

The circumstances surrounding the award of the two contracts in 1930 were discussed in Chapter V. The attack on their legality in 1932 produced no tangible evidence of collusion or of unlawful conditions of bidding; it came from persons who had no desire to bid at the time the contracts were awarded, and whose only interest was a desire to create a situation conducive to personal profit.[28]

Route extensions were considered in Chapter V. It was concluded that review by the Comptroller General probably prevented any actual illegality and that as a class the extensions were not contrary to the intent of

[28] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, p. 375.

Congress. Certain Congressmen seemed to feel that the policy of extending routes had been carried too far, but were assured by the Post Office Department that the extensions were all covered by contracts which could not be upset without breaking faith.[24]

Unfair competition between air mail carriers and other air transport operators for passenger traffic was a serious charge which so far has not been considered. The mail carriers were not permitted to under-cut the passenger rates of their competitors,[25] and such rate cutting as occurred was started by the independent passenger carriers. However, the mail carriers occasionally started competing passenger services with government aid, and such competition may have been unfair even though no rate-cutting was practiced.

Most competition in passenger service has taken place on the original routes of the various air mail carriers. Frequently, passenger service on these routes was provided by a non-mail carrier before passenger equipment was placed in operation by the mail carrier. This was especially likely to happen during 1930 and 1931 because the air mail carriers had learned to avoid passenger service by past experience and were only on the verge of placing it in operation to meet the wishes of the Postmaster General. A charge of unfair competition was overdrawn under such circumstances if the passenger service inaugurated by air mail carriers was merely a normal growth from past activities on the route. Something further seems to have occurred in the following case, as described by the complaining passenger carrier:

[24] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 1, 1932, p. 3.

[25] The same, p. 184.

When this company commenced operation from Chicago to St. Louis in March, 1931, the Post Office Department had but one air mail schedule between these two cities. The contractor was American Airways. We commenced our operations on this line with four schedules each way per day and soon after our operations commenced the Post Office Department awarded to American Airways, we are informed, three additional air mail schedules, and American Airways placed in operation on this route new equipment consisting of tri-motored 10-passenger airplanes, which adopted approximately the same schedules we had.[26]

Almost no competition in passenger service has taken place on air mail route extensions. For the most part the extensions have been in territory not attractive to the non-mail carriers. The only important case of such possible unfair competition was that of the Omaha-Watertown extension, discussed in Chapter V.

All of these cases of possible unfair competition were covered in the following exchange:

Mr. Kelly. The main question with us is where an independent line, without an air mail contract, is maintaining a passenger service and we take money from the Treasury and give it to a competing line that covers that identical territory.

Postmaster General Brown. There has been very little of that and it has not been done in any way without a perfectly good reason. Some of these operators who have suffered by reason of our giving contracts to the better equipped companies have grieved about it, but in every case in which that was done the operation was one that we could not approve.[27]

The Postmaster General further indicated that the situation was a transitory one. This proved to be the case; after the air mail carriers had completed the framework

[26] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, pp. 368-76.

[27] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 23, 1932, p. 184.

of their passenger services, new competing passenger services became quite rare.

The charge of high-cost, inefficient operation by air mail carriers was put in its most sensational form by representatives of the Cord Corporation. The attorney for this corporation made the following statements in a letter to the Chairman of the House Committee on Appropriations:

> We are willing to carry all of the air mail at a rate which will be approximately one-half the present rate which the Post Office Department is paying the air mail contractors on a per mile basis covering the same routes and the same schedules which are now in effect, including both night and day flying.
>
> . . . . . .
>
> Undoubtedly, severe losses will be suffered by the present air mail contractors if the air mail rate is cut in two. However, these losses will not be caused by the reduction of the air mail rate but will merely be the realization of very costly mistakes which have been made by certain operators because of extravagance, high overhead, and excessive executive expense. Of course, none of these mistakes should be paid for by the United States Government. However, under the policy upon which the Post Office Department has been administering the air mail appropriation in the past, the government has actually been paying for a large portion of these mistakes.[28]

Two airline proprietors from the Middle West indicated a similar belief that the air mail could be carried in their territories at half the rates paid by the Post Office Department.[29]

The offer to carry all the air mail at half the existing rates attracted much attention. It offered an oppor-

[28] *Post Office Appropriation Bill,* 1933, Hearings, House Committee on Appropriations, pp. 368-76.

[29] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 1-4, 23, 1932, pp. 54-61, 139-41.

tunity for savings which might have been applied on new routes, and as noted in the last section, the desire for many new services was intense. It was argued that even though contractual obligations prevented acceptance of such offers, they at least provided a sound reason for substantial reductions in the rates paid existing carriers.[80]

The attack on the rates paid existing carriers lost momentum for three reasons. It was easy to point out that the non-mail passenger carriers had not been in business long enough to know their costs well, particularly in such matters as obsolescence. The Postmaster General emphasized the difference in the standard of operation between air mail carriers and independent airlines, particularly on the score of safety. Finally, and possibly most important in its effect on the Congressional attitude, one of the carriers seeking a mail contract became involved in a labor dispute during the course of the negotiations early in 1932. It became apparent that the non-subsidized lines were paying a distinctly lower level of wages than the air mail carriers, and they were placed under suspicion of having taken advantage of a demoralized labor market. More attention will be given to this episode in the next section of this chapter.

The efforts of the independent passenger carriers during the first session of the Seventy-second Congress thus came to naught for a variety of reasons. The press of emergency legislation during the second session of that Congress and the special session of the present Congress which followed immediately after prevented any serious consideration of proposed air mail legislation. The non-

[80] *Post Office Appropriation Bill*, 1933, Hearings, House Committee on Appropriations, Feb. 8, 9, 1932, pp. 286-88, 297-98.

mail carriers thus were left to suffer without Congressional assistance, and their ranks soon thinned. Only two lines of any consequence were left in direct competition with air mail carriers when the air mail contracts were recently cancelled.

III. POLITICAL PRESSURE TO IMPROVE THE POSITION OF LABOR[31]

Not the least interesting phase of political events in connection with air mail service during the last administration was the prominent part played by a labor group, the Air Line Pilots Association. Few labor organizations have been so successful in attaining their ends by political means, principally because a subsidized industry is so open to pressure through Congress.

Air transport has witnessed a succession of fraternal organizations, but none having trade union characteristics until the formation of the Air Line Pilots Association in the summer of 1931. The industry was new and expanding; wages and salaries were high. Labor disputes were almost completely absent, and when present usually revolved around the pilot's status, rather than his wage. The strike of air mail pilots in 1919 will be recalled in this connection.[32]

The pressure of events from 1929 to 1931 conspired to end the *laissez faire* attitude on the part of the pilots, previously the most individualistic group in aviation. An overstocked labor market was a sequel to the aviation boom of 1929. Although air transport continued to grow despite general economic depression because of government support, other aeronautical activities collapsed

[31] Much of the information contained in this part was obtained from contact with members of the Air Line Pilots Association, particularly Mr. Frank Ormsbee, Washington representative during the first session of the 72d Congress.

[32] P. 29.

early in 1930 and released numerous pilots. Sporadic reductions in wages occurred, and the hours of flying per week were rapidly increased. The hours of flying had been increased from approximately ten per week during most of the period of government operation to about 15 in 1929; by 1931 the hours of flying had reached 30 per week in at least one case, and might have gone higher if the Department of Commerce had not interposed a regulation prohibiting more than 110 hours of flying per month.[33] Finally, a country-wide reduction in pilots' pay rates occurred in the spring of 1931, immediately after conferences between the air mail carriers and the Postmaster General at which the air mail rate formula of April 1, 1931 was adopted.

The result was the immediate and almost spontaneous formation of the Air Line Pilots Association. A short period of intensive under-cover work by pilots well-known to each other brought about the formation of local organizations for all the principal airlines. The establishment of the association to the point of including employees of all air mail carriers except one of the smallest seems to have been an accomplished fact before the carriers had any very clear realization of what was happening. The association soon included more than three-quarters of the actual line pilots of the United States. The pilots not included are mainly employed by the smaller independent passenger airlines; air mail pilots and pilots of the larger independents are almost completely organized.

Permanent representation in Washington before the Department of Commerce, the Post Office Department,

[33] "Regulations Governing Scheduled Operation of Interstate Passenger Air Transport Services," *Air Commerce Bulletin*, Sept. 15, 1931, Vol. 3, pp. 131-36.

and Congress was one of the first objects contemplated by the organization. It led to a decision to affiliate with the American Federation of Labor and to co-operate with the Railway Labor Executives Association. A representative of the Pilots' Association was sent to Washington in December 1931.

The principal labor dispute on any American airline occurred in February 1932. It took place between the pilots and the management of Century Airlines, subsidiary of the Cord Corporation. In January 1932 the corporation attempted to reduce the wages of its pilots. It already was paying a scale of wages substantially below the level for the country as a whole. The pilots demurred, tried to negotiate, and assert that an agreement for a few days' delay was reached. During this period it appears that they were all suddenly notified that their "resignations had been accepted." This move occurred four days after the offer of the Cord Corporation to carry all air mail at half the rates paid existing air mail carriers noted in the previous section of this chapter. Apparently the corporation was completely oblivious to the fact that a pilot lockout would hardly strengthen its case in Congress.

The effect of this ill-timed action was made painfully apparent during the course of hearings on air mail legislation early in March. What was intended to be a routine hearing on proposed legislation was turned into a forum for the consideration of a labor dispute. Each side was given ample opportunity to present its case; representatives of the corporation finally withdrew from the hearings without attempting rebuttal after testimony by one of the pilots formerly in its employ.[34]

[34] *Air Mail,* Hearings, House Committee on the Post Office and Post Roads, Mar. 1-4, 23, 1932, pp. 20-30, 40-43, 116-22, 150-54, 189-90.

The political repercussions stimulated by these hearings made the legislation sought by the Cord Corporation impossible of attainment. At the same time the corporation encountered difficulty in obtaining the approval of the Department of Commerce for its newly hired pilots—the department had reason to fear public opinion in the event of passenger casualties in connection with strike-breaking pilots, and made an ultra-thorough check on each pilot's qualifications. Notwithstanding these precautions, two pilots were killed and three injured in an accident while carrying on practice night flying.[35] Passenger traffic languished. Eventually the two airline subsidiaries of the Cord Corporation were sold to Aviation Corporation in exchange for stock, and the airlines were liquidated shortly after.[36]

Following this episode the Chairman of the House Committee on the Post Office and Post Roads introduced a resolution directing the Postmaster General to protect the right of employees of air mail carriers to collective representation and bargaining.[37] No action was taken on this resolution; instead the committee passed a resolution informing the Postmaster General of its desire that the employees of air mail carriers be given the privilege of collective representation.[38] A permanent subcommittee on grievances was also established by the committee, with the object of providing machinery for hearing complaints by employees of air mail carriers and employees of the Post Office Department.

A further attempt to capitalize the Century dispute

[35] *New York Times*, Mar. 9, 1932, p. 5.
[36] *Poor's Cumulative*, 1932, Vol. 2, pp. 17, 68.
[37] 72 Cong. H. J. res. 345, introduced Mar. 25, 1932.
[38] *Air Pilots*, Hearings, House Committee on Interstate and Foreign Commerce, May 12-13, 1932, pp. 44-45.

took the form of an effort to amend the Railway Labor Act to include air transport. A bill for this purpose was introduced in the House by Congressman LaGuardia on April 1, 1932.[39] This bill did not completely meet the approval of the Railway Labor Executives Association, whose support was considered politically indispensable. An agreement was finally reached on a bill drawn by an attorney for the railway brotherhoods,[40] which was promptly introduced in the House by Mr. LaGuardia and in the Senate by Mr. Bingham.[41] The Senate bill was reported favorably,[42] but did not reach a vote. Hearings were held on the House bill, at which it was opposed by representatives of air mail carriers and the Aeronautical Chamber of Commerce and advocated by representatives of the Air Line Pilots Association, the American Federation of Labor, several of the railway brotherhoods, and the Railway Labor Executives Association.[43] The representatives of the carriers seem to have been successful in convincing the House committee that the bill was not needed, and the committee took no action.

It appears that, as the result of its political activities during the spring of 1932, the Air Line Pilots Association was able to end a serious labor dispute without a defeat, if not with a victory. Since that time the association has continued active, but its activities have had little to do with air mail legislation. Recently it took an active part in hearings before the National Recovery Ad-

[39] 72 Cong. H. R. 11053.
[40] 72 Cong. S. rep. 713, p. 4.
[41] 72 Cong. H. R. 11867; S. 4565.
[42] 72 Cong. S. rep. 713, May 19, 1932, pp. 1-5.
[43] *Air Pilots*, Hearings, House Committee on Interstate and Foreign Commerce, May 12-13, 1932, pp. 1-47.

ministration on the air transport code, and as this is written, a major dispute between the association and the carriers is still pending before the National Labor Board.

IV. POLITICAL MOVEMENT FOR COMMISSION REGULATION

Eventual commission regulation of interstate air transport has been predicted by many ever since the beginning of the industry. In 1929 and 1930 the overbuilt condition of the industry led to excessive competition, which brought about a sporadic interest in commission regulation as a means of ameliorating cut-throat competition among airlines. Two bills on the subject were introduced in Congress,[44] and the desirability of regulation was much debated in the aeronautical press.[45] In the main the industry was then opposed to regulation, and the subject has since received little attention.

The time never seemed ripe for a strong political movement for commission regulation; but the air mail carriers were giving the subject very serious consideration in 1932. As a class they were already quite thoroughly regulated by the Post Office Department, but they had been denied one of the benefits of regulation in that they were constantly faced with a continuing series of competitors for passenger traffic, who also attempted to obtain the right to carry mail. Moreover, the air mail route certificates were to expire in April 1936, and the more far-seeing carriers were beginning to wonder about their future after that date. At the 1932

[44] 71 Cong. H. R. 4286, by Mr. Cable; S. 1880, by Mr. Bratton.

[45] For a list of articles at the time, see the writer's article, "Federal Regulation of Airplane Common Carriers," *Journal of Land and Public Utility Economics*, November 1930, Vol. 6, pp. 359-71, at p. 361.

hearings on air mail legislation, Colonel Paul Henderson said:

> We are not particularly interested in the money that we made last year, or the money that we may make this year. What we are interested in is establishing ourselves in this business not for the period of our present route certificates which expire in May, 1936, but for all time. We are puzzled as to what may be ahead of us after May, 1936. . . .
>
> It seems to me that what this business needs is a settling down. There never has been a time in this business when we could plan ahead more than a year with certainty of carrying those plans into effect. When a thing gets to be as big as this is, it is embarrassing and dangerous to be in a position where plans cannot be made and carried out deliberately over a reasonable length of time. . . .
>
> We believe that when 1936 comes, there should be some provision made which will permit us to permanently operate over the lines that we are now operating over with rates that are reasonable, and that we should be permitted to establish ourselves just as the railroads have established themselves. 1936 is not very far in the future. . . . We have great hopes that long before 1936 you will provide the legislative vehicle that will let us stay in this business. . . .[46]

Colonel Henderson further advocated that either a special regulatory commission be established or else that jurisdiction over air transport be conferred upon the Interstate Commerce Commission. Among the powers to be exercised over air transport, he specifically mentioned control over the compensation for the transportation of mail.[47]

Representatives of other air mail carriers were more slow to commit themselves; not long ago, several were known to be opposed to commission regulation. A year

[46] *Air Mail*, Hearings, House Committee on the Post Office and Post Roads, Mar. 2, 1932, pp. 67, 69.

[47] The same, p. 72.

ago *Aviation* magazine sent out a questionnaire to leading air transport operators, and asked, among other questions, whether they favored rate regulation and the requirement of certificates of convenience and necessity for air transport. Three representatives of air mail carriers were definitely favorable, feeling that certificates would be a useful protection for their investments and that they would be willing to accept rate regulation; one representative of an air mail carrier was opposed at that time, but thought such regulation might be necessary in the future. The only exponent of unvarnished competition was an independent air transport operator on the West Coast, who sold his original air transport venture to an air mail carrier and later started another airline in competition with the group to which he had sold out.[48]

If the relationship between the carriers and the Post Office Department had continued as it existed prior to the cancellation of contracts, it seems likely that a number of carriers would soon have favored a transfer of control to the Interstate Commerce Commission. The matter now stands in abeyance, but if the mail is again restored to private airlines, it seems likely that commission regulation may soon be favored. The desirability of commission regulation is discussed more fully in the next chapter.

[48] "Answers for Transport's Problems," *Aviation*, August 1932, Vol. 31, pp. 328-31, 355-59.

CHAPTER VIII

A PROGRAM FOR THE FUTURE

On the basis of the disclosures before a special committee of the Senate and his own investigations, the Postmaster General deemed it necessary on February 9, 1934, to annul all of the domestic air mail contracts as of midnight, February 19, 1934.[1] To prevent interruption of service by the annullment, an executive order was issued by the President, also on February 9, directing the Secretary of War to furnish the men and equipment necessary to move the mail during the emergency.[2]

The reasons for the annulment of the contracts were set forth by the Postmaster General on February 14, 1934 in a letter to Senator Black, chairman of the Special Committee on Investigation of Air Mail and Ocean Mail Contracts. The conferences of operators in 1930 and the circumstances surrounding the award of the two transcontinental routes in 1930 were discussed at length in the letter, and the following conclusions were stated:

> My investigation, based on the records, books, papers, contracts and documents in the department, or introduced before your committee, or taken from the files of Mr. MacCracken, shows that every corporation whose contracts I annulled, or its predecessor or its subsidiary corporation, had representatives in the conferences hereinbefore mentioned, which, I am convinced, was contrary to law.
>
> It is incontrovertible that the 1930 meeting was held, that it was confined to those who subsequently obtained the contracts, that the provision of law calling for competition in bidding was not carried out, and that all the present domestic air

[1] *New York Times*, Feb. 10, 1934, p. 2.
[2] The same, p. 1.

mail carriers secured contracts based on conspiracy or collusion, with the possible exception of the National Parks Airways, which will be given further consideration.

Administrative officers of the United States have authority, and it is their duty to annul any contracts procured illegally or by fraud. The Act of June 8, 1872, provides:

"No contract for carrying the mail shall be made with any person who has entered, or proposed to enter, into any combination to prevent the making of any bid for carrying the mail, or who has made any agreement, or given or performed, or promised to give or perform, any consideration whatever to induce any other person not to bid for any such contract; and if any person so offending is a contractor for carrying the mail, his contract may be annulled; and for the first offense the person so offending shall be disqualified to contract for carrying the mail for five years, and for the second offense shall be forever disqualified." (39 U. S. code 432; R. S. Sec. 3950; Act of June 8, 1872, c. 335.)

In view of the facts heretofore recited and the plain provisions of the law, it was clearly my duty to annul all of these contracts.[8]

The conclusions so stated were promptly challenged by former Postmaster General Brown in statements to the press and in sworn testimony before the special committee of the Senate. An acrimonious and partisan controversy over the annulment of the contracts began immediately and seems likely to continue indefinitely, as additional evidence is brought to light and presented before Congressional committees and the courts. Meanwhile, it is rapidly becoming apparent on the one hand that the Army is not well fitted for carrying the mail, and on the other that the air transport industry will find it impossible to maintain a scale of operation comparable with the recent past if it continues to be deprived of all income from mail transportation. The present postal ad-

[8] The same, Feb. 15, 1934, p. 10.

ministration evidently desires to return the mail loads to commercial airlines as soon as practicable, and it therefore seems in order to suggest a program for the future by which the mistakes of the past may be avoided. We shall consider first certain changes in legislation required by the present emergency.

I. AN EMERGENCY PROGRAM

An immediate return to private operation could be attempted under existing legislation, but new legislation seems highly desirable. In the first place, the former air mail carriers have been disqualified for carrying the mail for five years by the terms of the statute under which the contracts were annulled. The existing passenger airlines which did not carry mail are few in number and extremely limited in financial resources. It seems unlikely that any one of these lines could find the capital necessary to operate a transcontinental route. New companies might be established, if the Post Office Department were willing to waive experience as a qualification for prospective mail carriers, but such companies would doubtless experience great difficulty in obtaining sufficient capital to finance their operations. It has been suggested that the former mail carriers might avoid the law through reorganization, but if such reorganizations involved real changes in management, the process would be very wasteful and likely to leave the new companies almost without liquid assets.

The bald fact is that an airline cannot be operated without money, and the only substantial amount of money available for airline operation is in the hands of the former mail carriers, unless the Post Office Department is prepared to attract new money by offering terms which would be exceedingly favorable. It therefore

seems most desirable that new legislation be adopted which will remove the ban on mail carrying by the former carriers.

If the former carriers are again permitted to bid, certain conditions can and should be imposed. First, the companies should be forced to dissociate themselves from each other, in the interests of full and free competition in bidding. Second, they should be forced to dissociate themselves from the manufacturing companies with which they have been affiliated, in the interests of competition in their equipment purchases. To these ends, all companies desiring to bid on mail contracts should be allowed to bid only after proving to the satisfaction of the Postmaster General that they have no investments in manufacturing or transportation companies, and that they are not themselves controlled through stock ownership or otherwise by other companies. Third, the law should prohibit the award of more than one of two or more competing or parallel routes to the same carrier, in order to maintain service competition over alternative routes.

Contracts should be awarded for relatively short periods, perhaps not longer than a year. This may seem an unduly short period, but it should be remembered that with compensation definitely fixed by the terms of an award, almost no change can be made in the nature of the service on any route during the life of its contract. Opportunity should be presented at least annually for changes in schedules, routes, and the quality and amount of service.

The situation is now altogether different from that which existed when the first contracts were awarded for terms of four years. At that time there were almost no

existing airline companies, and the term of four years appeared necessary to induce the establishment of companies. At present existing companies would be glad to have an opportunity to bid on one-year contracts, although doubtless they will express a preference for a longer term.

Contracts for a period much longer than one year at fixed rates of compensation seem likely to have a very unwholesome effect upon bidding rates and the financing of operations. The growth of traffic over a long period is so uncertain that the bidding on long-term contracts is likely to be very speculative. Judging by the experience of the past, if long-term contracts are again awarded by competitive bidding, the department will soon find itself paying excessive rates in some cases and inadequate rates in others. In the latter cases the carriers may go into bankruptcy unless compensation is increased. From the standpoint of operation, a fixed compensation rate can be in accordance with operating cost during only a small part of a period as long as four years. A rate which is reasonable during the first year is more than likely to be very lucrative during later years, while conversely, a rate which might be reasonable during the later years will not finance current operations during the first year. Whatever the term of the contracts, competitive bidding is so speculative in character that the department should exact a performance bond adequate to insure operation even at a substantial loss throughout the entire term of the contract.

Some change in the method of compensation should also be provided by new legislation. Members of the House Committee on the Post Office and Post Roads now appear to favor a pound mile basis of compensation,

with a maximum pound mile rate of two mills and an additional bonus to permit operation of routes which could not exist on the pound mile rate alone. This plan has merit, in that an attempt is made to relate at least a part of the payments to the postal revenue from air mail. It presents administrative difficulty in that the claims of the carriers would be extremely difficult to audit, and this perhaps should bar it from consideration.

The space basis of payment is perfectly proper if it is honestly administered and the purchase of excessive space is avoided. A simple plan of space payments might provide for the payment of not to exceed 35 cents a mile for space in which to carry loads averaging not more than 300 pounds, loads to be averaged over monthly periods, and the actual rate to be determined by competitive bidding. Some provision must be made for loads averaging more than 300 pounds, but if bids are taken against additional space units, the bids will be complex and difficult to compare. It is therefore suggested that space needed in addition to that for loads averaging 300 pounds be taken at a fixed statutory rate of 3 cents a mile for each hundred pound unit, a rate comparable to present air transport passenger fares.

In practice this would mean that variation in bidding would be confined to the rate for the first space unit, and carriers would be required to furnish additional space units at a rate equivalent to the rates charged passengers. Thirty-five cents a mile is suggested as the maximum rate for the first space unit because it is believed to be adequate to cover total flying costs, provided passenger revenues or compensation for additional space units furnish additional revenue of approximately 20 cents a mile. Routes which cannot average 20 cents a mile of

revenue in addition to payments for the first space unit probably should not be encouraged.

New legislation should also protect the department in some way against pressure for unjustified extensions of service. This could be done by a statutory requirement that service be withdrawn whenever the average mail load drops below some stated minimum for three successive months. An average load requirement of 50 pounds would not seem too high; even a minimum requirement as low as 15 pounds would be of service, if that is the highest which can be obtained. Such a requirement would prevent many unjustified routes from ever being promoted, and would save appropriations for expenditure on the routes where they would do the most good.

The requirement that government contractors pay prevailing rates of wages is now becoming common in federal legislation, and might well be incorporated in new air mail legislation. If this is done, wage scales satisfactory to the Department of Labor should be incorporated in the specifications for service when routes are advertised. Otherwise the smaller independent airlines and new companies with little operating experience will almost certainly bid on the basis of wage scales far below the prevailing rates.

Uniform accounts and regular financial reports should be required of the carriers by law, and their accounts should frequently be audited. Even if awards are made by competitive bidding, in many cases there may not be much competition, and the department should know the operating results of awards, in order that lower acceptable maximum bids may be established if warranted when routes are again advertised. Careful auditing will

be especially necessary if pound mile payments are made, in order to detect rebates and excessive traffic promotion expense.

Publication of the financial reports of the carriers should be required by law. This is a perfectly proper requirement if it is included in the specifications against which the carriers bid, and it is very desirable because the publication of trustworthy financial statements seems likely to end much of the scandal which has attached to the service in the past, and will promote competitive bidding based on a wide knowledge of actual operating experience.

Present air mail postage rates should be reduced. Legislation is, however, not necessary to permit a reduction. The present rates appear to be much too high. They went into effect a few days after the beginning of the last fiscal year, and appear to have been responsible for the decline in the estimated amount of air mail from 3,544,263 net originating pounds during the fiscal year 1932 to 2,685,516 net originating pounds during the fiscal year 1933.[4] An extremely slight increase in estimated air mail postage revenue was recorded, from $6,016,280 in 1932 to $6,116,442 in 1933. The 1933 revenues were still below the estimate of $6,210,345 for 1931, which was by no means a good year for postal revenues. The attempt to increase air mail revenues by resort to an extremely high scale of postage rates thus appears to have been unsuccessful, and a return should be made to the lower rates under which revenues increased approximately a million dollars a year during the fiscal years 1929-31. Rates can and should be set

[4] Post Office Department, *Appendix to the Cost Ascertainment Report*, 1933, Table 3 and Chart 2.

at 5 cents an ounce by administrative action under present legislation, if Congress does not see fit to require this change by law.

II. A PERMANENT PROGRAM

The suggestions for immediate legislation given above have been set down in spite of the fact that competitive bidding does not appear to be permanently desirable as a means of establishing air mail routes and determining the compensation of the carriers. The present situation demands emergency action, and competitive bidding appears to be the only practicable method by which the mail can be restored to the commercial airlines at an early date. Competitive bidding has many disadvantages as a permanent policy.

The instability of the industry is one of the principal disadvantages under a regime of competitive bidding for routes. Companies which attempt to establish themselves on their respective routes with the facilities and equipment necessary for good service face the possibility at the end of each contract term that some newcomer may underbid them, greatly reducing the value of their equipment and destroying organization values resulting from years of effort. Carriers will seldom operate routes on which the mail contract has been lost to another; it is useless to hope that several carriers will constantly operate over the same routes, each hoping to obtain the mail contract the next time it is advertised. It seems inevitable that if competition is encouraged and bidding is made easy, permanent investment will be avoided and shoestring operation will be the rule. On the other hand, if bidding is limited to experienced companies and a high quality of service is enforced through the requirement of large performance bonds, only the company in actual

operation on a route will be able to bid in most cases. Competition in fact will be absent, yet all the administrative disadvantages of competition will remain.

Services awarded under competitive bidding are extremely difficult to administer from the postal standpoint in an industry which is changing as rapidly as air transport. Schedules are difficult to change during contract terms, since change may be opposed by the contractor because adverse to the needs of passenger traffic. Only minor changes may be made in the layout of routes except as new contracts are made. Equipment and service may prove unsatisfactory under the test of experience, or may not keep pace with the progress of the art, yet cannot be changed if they meet the specifications in the advertisements. All of these matters could be adjusted readily enough if compensation rates could be changed; but compensation rates are the most inflexible feature of a service carried on under competitive bidding. These difficulties led to the suggestion above that contract terms be kept short; but short contract terms contribute greatly to the instability of the industry.

The conclusion is inevitable that air mail routes should at an early date be placed upon a route certificate or franchise basis similar to that in effect at the time the contracts were cancelled. Under this system service and compensation would again be subject to administrative determination. Great care will have to be exercised at that time, however, if the mistakes and difficulties of the former period of wide administrative discretion are to be avoided.

Under the Watres Act, the compensation of the air mail carriers was the phase of the service most needful of reform from the standpoint of the public interest.

The facts recited in previous pages give ample reason to believe that the total amounts of mail payments were excessive and wasteful, that their distribution among carriers was not in all cases equitable, and that the scheme of passenger subsidy payments as a part of mail compensation was not well designed if subsidy was to be brought to an early end. A plan of payments was promised for use under certificate operation which would clearly segregate mail compensation from passenger subsidies, which would set up subsidy payments in a way conducive to their early termination, and yet which would offer reasonable assurance of just treatment during the process. Such a plan is given here in outline form, in the hope that it will prove useful when the exigencies of the situation permit the adoption of permanent plans for the administration of the air mail service.

1. *Accounting reforms.* Sound accounting procedure is a prerequisite to any just determination of compensation. The accounting system required of the carriers should be reformed to segregate mail expense, because mail transportation is the only service for which the Post Office Department has a continuing obligation to pay. The segregation of mail expense should include not only the segregation of all direct expense, but also the allocation of proper amounts of all other expenses incurred in part on account of mail service. The proper basis of allocation will vary with the nature of the expense item to be allocated, but in general the ratio of the weight of mail traffic to the weight of all other traffic is a suitable basis for allocating common costs, as argued in the first section of Chapter VI.

2. *Auditing reforms.* Audits to determine actual and reasonable costs at least annually are indispensable for

reliance upon the accounting reports of the carriers in the determination of compensation.

3. *Compensation in full for the cost of mail transportation.* The Post Office Department should definitely accept its obligation to pay the full mail share of the cost of transportation and a reasonable profit, and this regardless of whether the postal revenue attributable to any particular air mail service is more or less than the cost of mail transportation for the service. For convenience, mail payments to each carrier can best be fixed as a lump sum payable per month for 100 per cent performance, and subject to proportionate reductions for less than 100 per cent performance. The unlikelihood of 100 per cent performance should of course be taken into account in determining the amount to be paid. Lump sum rates might be readjusted quarterly on the basis of the carriers' reports.

4. *Passenger subsidy contributions on a definite basis.* Any plan for the resumption of air mail service under private operation will probably involve payments which will include some element of passenger subsidy. The passenger subsidy element probably cannot be segregated while compensation is determined by competitive bidding, but the fact that subsidies are being paid should be recognized, and when compensation rates again become subject to administrative discretion, subsidy payments should be segregated and an equitable plan for eventually ending them should be adopted. If the carriers are to be encouraged to build up traffic at as rapid a rate as possible, subsidies should be related in some way to the audited passenger revenues of the carriers, and it would seem further that in no case should they exceed 100 per cent of audited passenger revenues. The figure is of course arbitrary, and may seem large, but

it is distinctly less than the average passenger subsidy at the time the contracts were cancelled. By the time such a method of controlling subsidy payments can be adopted, it seems likely that subsidies at any higher rate would encourage the continuation of operations of slight economic justification.

The same subsidy rate should not be provided for all carriers. Equal treatment might seem to demand the application of the same rate to all, but no more unequal treatment could be devised than the application of the same rate to carriers whose circumstances differ so greatly. After an audit of the carriers' accounts and as part of a general program of reform, a schedule of subsidy rates should be adopted for the following year, the rates in all cases to be expressed as a ratio of audited passenger revenues and to be determined according to the prospective needs of the carriers.

Subsidy rates should be reduced at regular intervals, perhaps annually. A schedule of reductions should be adopted in the beginning for future application; for example, a program might be adopted for reducing the subsidy rate annually in each case by 10 per cent of passenger revenues. On this basis a carrier starting with a subsidy rate of 100 per cent of passenger revenues would be brought to a self-supporting basis in ten years, while one starting with a subsidy rate of 50 per cent would be brought to self-support in five years. The rate of reduction should be determined only after careful study of future possibilities, and then should be adhered to with a considerable degree of tenacity. Changes in the rate of reduction should be possible after suitable review by a body of semi-judicial character, but should be made very difficult to obtain, in order to provide the maximum

amount of incentive to the carriers to attain self-support. Some method of adjustment must be provided to care for extreme cases of hardship, unless the bankruptcy of some carriers is definitely contemplated.

This scheme of subsidy payments is designed throughout to give the carriers the highest possible incentive to cost reduction and traffic promotion. In the cases where subsidy payments are large compared with passenger revenues, the carriers will be tempted to grant rebates and adopt other uneconomic promotional devices. The control of passenger rebates is relatively easy, and other expensive promotional methods will not be difficult to detect if accounts are carefully audited. Regulations to cover this point are an essential part of the plan.

5. *Indeterminate franchises to compensate for early losses.* The application of this plan will require operation at a loss in many cases if the maximum subsidy rate is held to 100 per cent and a rapid rate of subsidy reduction is instituted. In any case, operation at a loss or at slight profit seems a reasonable requirement for an industry which is being subsidized on a temporary basis. The carriers should be stimulated to seek their profits through the attainment of self-support at an early date. If, however, the air transport industry is allowed to remain open to all comers, a rapid increase in the amount of cut-throat competition may be expected as soon as any portion of the industry approaches self-support.[5]

Since air transport appears to be an industry which can best be conducted in any case on a basis of partial monopoly, under which competition is permitted among air carriers only between large centers, it would seem well

[5] For a discussion of the economics of competition in air transport, see the writer's "Federal Regulation of Airplane Common Carriers," *Journal of Land and Public Utility Economics*, November 1930, Vol. 6, pp.

to give the air transport companies indeterminate franchises permitting sole occupancy of their routes during good behavior. To compensate for early losses, it would then be possible to go further and to provide that no form of passenger rate regulation would be adopted to limit the profits of the carriers until, say, five years after subsidy payments have been reduced to zero. In view of the competition of the carriers among themselves between important points and the ever present competition of surface transportation facilities, the fear of monopoly and excessive rates appears highly academic. A sufficient degree of regulation to prevent the unification of competing carriers through holding company control or otherwise should be provided.

6. *Consideration of budgetary problems not proper in the determination of compensation.* The application of the plan of compensation and subsidy payments just set out will make the payments to the carriers difficult to predict exactly. However, so far as compensation is concerned, the just rate of compensation has no more relation to the budgetary problems of the Post Office Department than the compensation of the railroads for carrying mail. So far as subsidy payments are concerned, their amount should be subject to the will of Congress, but the progress of the industry will be much more satisfactory if Congress will adopt a long-run policy and then adhere to it. Once a comprehensive plan has been adopted, budget estimates should be made with care, but if they prove incorrect, the estimates should be revised to fit the payments rather than the reverse. Some adjustment is always possible through curtailment of service on the routes which seem least likely to attain self-support at an early date.

7. *Commission regulation of compensation and sub-*

sidy payments. The foregoing plan of compensation and payment of subsidies may seem complex, but the complexities are necessary if the administrative advantages of the route certificate plan of air mail service are again to be attained without many of the disadvantages which helped to discredit administrative control over air mail carriers during the last administration. It seems unlikely, however, that such a plan can be installed by the Post Office Department and carried through in a satisfactory manner. The administrative framework of the department is not adapted to carrying through lengthy regulatory processes of a semi-judicial nature. A single overworked superintendent of air mail service can hardly be expected to administer the strictly postal side of the air mail service and still find time to be an expert on accounting methods and judicial determination of rates. A regulatory commission having jurisdiction only over accounts and rates could be installed in the Post Office Department, but would be unlikely to have the independence requisite for its work, and would have no interest in the co-ordination of air transport with other forms of transportation. It appears therefore that when a return to the certificate or franchise plan of operation is attempted, the regulatory activities formerly carried on by the Post Office Department, especially with respect to accounts, mail compensation rates, and passenger subsidy payments, should all be re-established under the Interstate Commerce Commission, with suitable instructions from Congress as to the policies to be followed.

The re-establishment of regulatory activities of a quasi-judicial nature in the Interstate Commerce Commission rather than the Post Office Department would

be desirable even if no action were taken with respect to the non-mail carriers. Succeeding generations of independent airlines might be permitted to establish themselves in the future as they have in the past, to fail or to survive as the case might be; but at least the major part of the industry would be conducted on an orderly basis, with some assurance of reasonable compensation for mail transportation, enough aid to maintain passenger service under safe operating methods, and some financial security. Questions of rate making and subsidy determination which affect only the mail carriers would be placed in skilled hands, and decisions on major matters of policy would be made only after consultation and exchange of ideas among equals, and in a non-political atmosphere.

The extension of commission regulation to include the non-mail carriers would be very desirable, however. The regulation applied would follow the pattern familiar in other public service industries. Proposed airlines would be required to obtain certificates of public convenience and necessity before beginning operation. Existing airlines would receive certificates automatically, providing they met reasonable standards with respect to financial stability and operating methods. Some undesirable route competition might thus be continued for a time, but probably would soon be ended through mergers which should be subject to the supervision of the commission. Uniform accounts and reports would be prescribed. The quality and amount of service would receive some supervision, probably not very rigorous. Approval of the commission should be required for the issuance of securities and stock ownership should be regulated, to prevent control of the operating companies by

holding or manufacturing companies. The commission might be given control over passenger and express rates, but probably would use it little, in view of the effectiveness of competition from surface transport media.

Mail could be placed on all existing airlines under commission regulation, ending once and for all the division in the industry which has been a continual source of political friction. Congress has had a natural unwillingness to authorize mail transportation over all airlines, in the absence of commission regulation. With no bar to the establishment of new airlines and easy access to mail payments, no limit could be placed upon the need for air mail appropriations. Moreover, mail could be placed on all airlines only with the elimination of competitive bidding for routes, and Congress in the past has been unwilling to authorize the Postmaster General to establish rates of compensation on new routes by negotiation. Congress would undoubtedly be willing to declare all airlines post roads if the compensation were in the hands of the Interstate Commerce Commission. Such a move would strengthen the position of existing non-subsidized airlines in so far as a substantial volume of mail could be developed over their routes.

The regulation proposed will meet with a number of objections which are already current in the air transport industry, and which may therefore be anticipated.

The independent airlines especially have opposed commission regulation on the ground that it would stifle the initiative so vital to the progress of a young industry. This objection will be less prominent if the independents can be brought to realize that only through a program of regulated monopoly can all airlines hope to obtain the privilege of carrying mail. The objection can be answered on its own merits, however.

The non-mail carriers which are held forth as examples of initiative have made almost no contribution to technical advance. What contributions they have made have been along the lines of economy in management and operation. Their contribution in this field has been important, but their usefulness in this respect is rapidly drawing to a close. Any air mail carriers established under a regime of competitive bidding will have a healthy interest in cost reduction, and if the plan of compensation outlined above is adopted, the air mail carriers still have an ample stimulus to economy. The continued opportunity for easy entrance to the air transport field will jeopardize that plan at least in so far as it contemplates early sacrifices by the mail carriers in return for future advantages.

Another common objection to commission regulation in air transport results from confusion of drastic regulation of passenger fares with commission regulation in general. It is felt that no necessity exists at present for regulation of passenger rates. The writer is in accord with this view. The regulation contemplated would be addressed primarily to control of compensation for mail transportation, control of subsidy payments, and control of the establishment of new airlines through certificates of convenience.

Still another common objection to commission regulation of air transport assumes that it would necessarily involve a shift in the location of the regulatory powers now exercised by the Department of Commerce. These powers are designed to insure safe methods of operation. Although it is true that the Interstate Commerce Commission now exercises similar powers with respect to the railroads, they are not an essential part of the commission regulation contemplated for air transport, and

jurisdiction over the air transport operating methods may well stay in its present location. The work is highly technical, can be done more economically in connection with similar regulation of non-common carrier aviation, is suitable for an administrative department, and is now being carried on in a satisfactory manner.

Finally, it is argued that the Interstate Commerce Commission is unfamiliar with air transport and that its regulatory methods are inflexible and not well adapted to the needs of a new and rapidly changing industry. While some merit attaches to this objection, it is overweighed, in the view of the writer, by the advantages which can be secured only through commission regulation. But it is to be hoped that the Interstate Commerce Commission will make such changes in its procedure as may be needed if it is granted jurisdiction over air transport.

The problems of air transport are only a small part of the problems of transportation in the United States for which solutions are now being sought. Large additions to the jurisdiction of the Interstate Commerce Commission now seem imminent, and a sweeping reorganization of its policies and procedure is more than likely. It is not too much to hope that a consistent scheme of legislation will be worked out and carried through in which air transport will be treated as one unit in a coordinated group of transportation agencies, but with recognition of its special needs and problems. Such a scheme of legislation can and should be carried through within two years.

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